REMARKS

Claims 1-16 are currently pending in the subject application and are presently under consideration. Claim 10 has been canceled. Claims 1-4, 6-7, 9, 11-13 and 15-16 have been amended. Claims 17-42 have been canceled and are being pursued in divisional applications. Applicants' representative thanks the Examiner for the withdrawal of the rejection under 35 U.S.C. §101.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 1-4, 6, 7, 9-14 and 16 Under 35 U.S.C. §102(e)

Claims 1-4, 6, 7, 9-14 and 16 stand rejected under 35 U.S.C. §102(e) as being anticipated by Teegan, *et al.* (US 6,748,555). This rejection should be withdrawn for at least the following reasons. Teegan *et al.* does not disclose ***each and every*** limitation of the subject claims.

> A single prior art reference anticipates a patent claim if "***each*** and ***every*** limitation set forth in the patent claim" is disclosed either expressly or inherently. (*Trintec Industries, Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 1295, 63 U.S.P.Q.2d 1597, 1599 (Fed. Cir. 2002) (citing to *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1052-53 (Fed. Cir. 1987))) (emphasis added). Moreover, "[t]he ***identical*** invention must be shown in as ***complete*** detail as is contained in the patent claim." (*Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (citing *Jamesbury Corp. v. Litton Industrial Products, Inc.*, 756 F.2d 1556, 1560, 225 U.S.P.Q. 253, 257 (Fed. Cir. 1985); and *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983))) (emphasis added).

Teegan *et al.* discloses a software manager for monitoring software objects. (*See e.g.*, Teegan *et al.* at Abstract). The software manager is operable to derive program-level metrics to provide an overall picture of a software object's performance. (*See e.g., Id.*). Teegan *et al.* does not disclose gathering and aggregating operational metrics indicative of one or more ***states of a plurality of member machines configured as an array of machines***, a unified result set indicative of the ***system-wide state of the array of machines*** or an interface for providing the unified set result to a requestor ***as if the array of machines were a singular machine*** as recited in the subject claims.

II. Rejection of Claims 1, 3-8 and 15 Under 35 U.S.C. §102(e)

Claims 1, 3-8 and 15 stand rejected under 35 U.S.C. §102(e) as being anticipated by Salzberg, *et al.* U.S. Publication No. 2003/0086536, KPMG Consulting Inc. (hereinafter Salzberg-KPMG). This rejection should be withdrawn for at least the following reasons. A declaration under 37 C.F.R. §1.131 was previously filed on May 23, 2005, a copy of which is enclosed herewith. This declaration shows that the subject matter recited in the claims was reduced to practice prior to the effective date of Salzberg-KPMG. Accordingly, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [MSFTP125US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,
AMIN & TUROCY, LLP

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Reg. No. 52,970

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Cleveland, Ohio 44114
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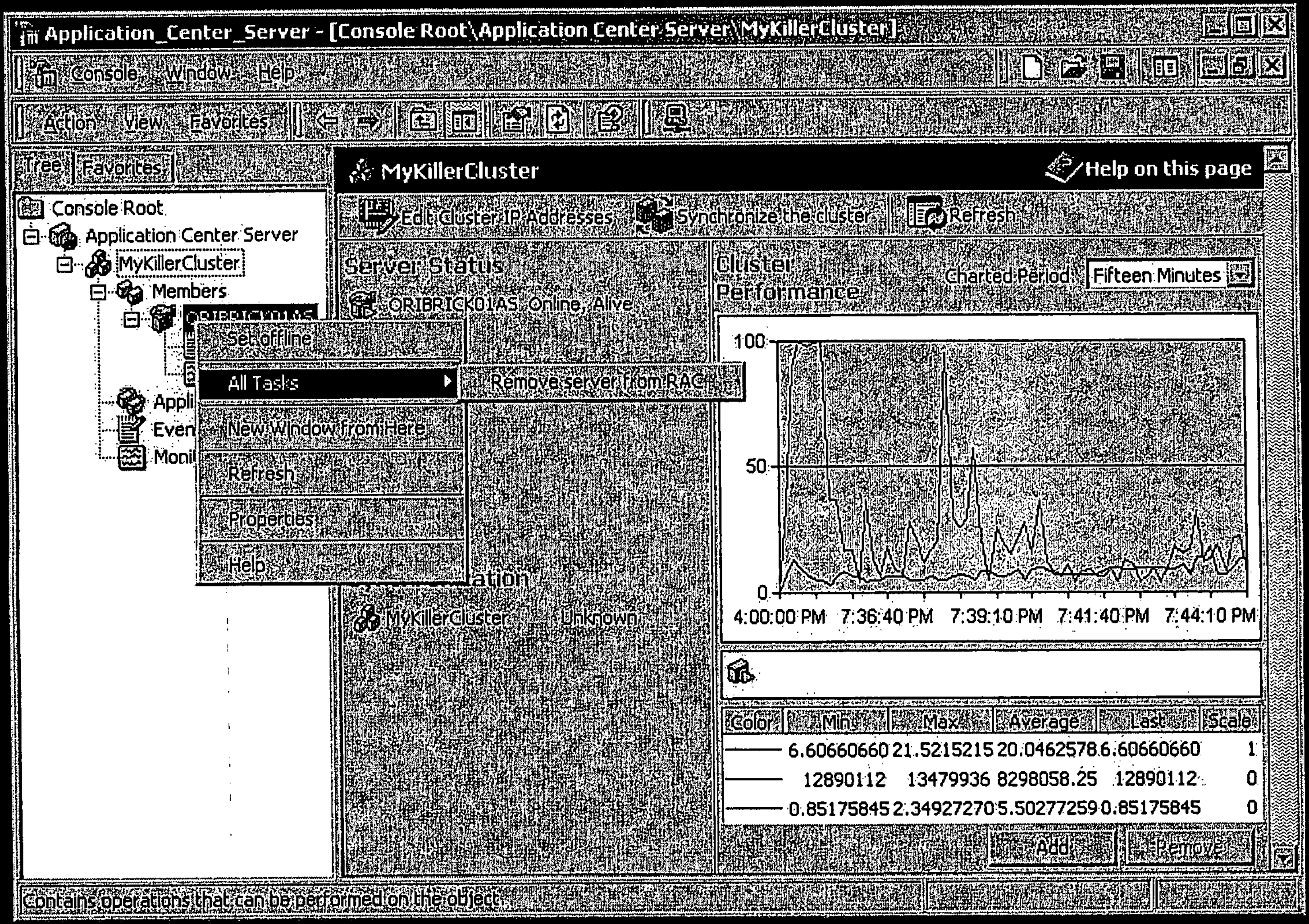
EXHIBIT A

Main MMC console



Color	Min	Max	Average	Last	Scale
——	6.60660660	21.5215215	20.0462578	6.60660660	1
——	12890112	13479936	8298058.25	12890112	0
——	0.85175845	2.34927270	5.50277259	0.85175845	0

ApplicationCenter 2000

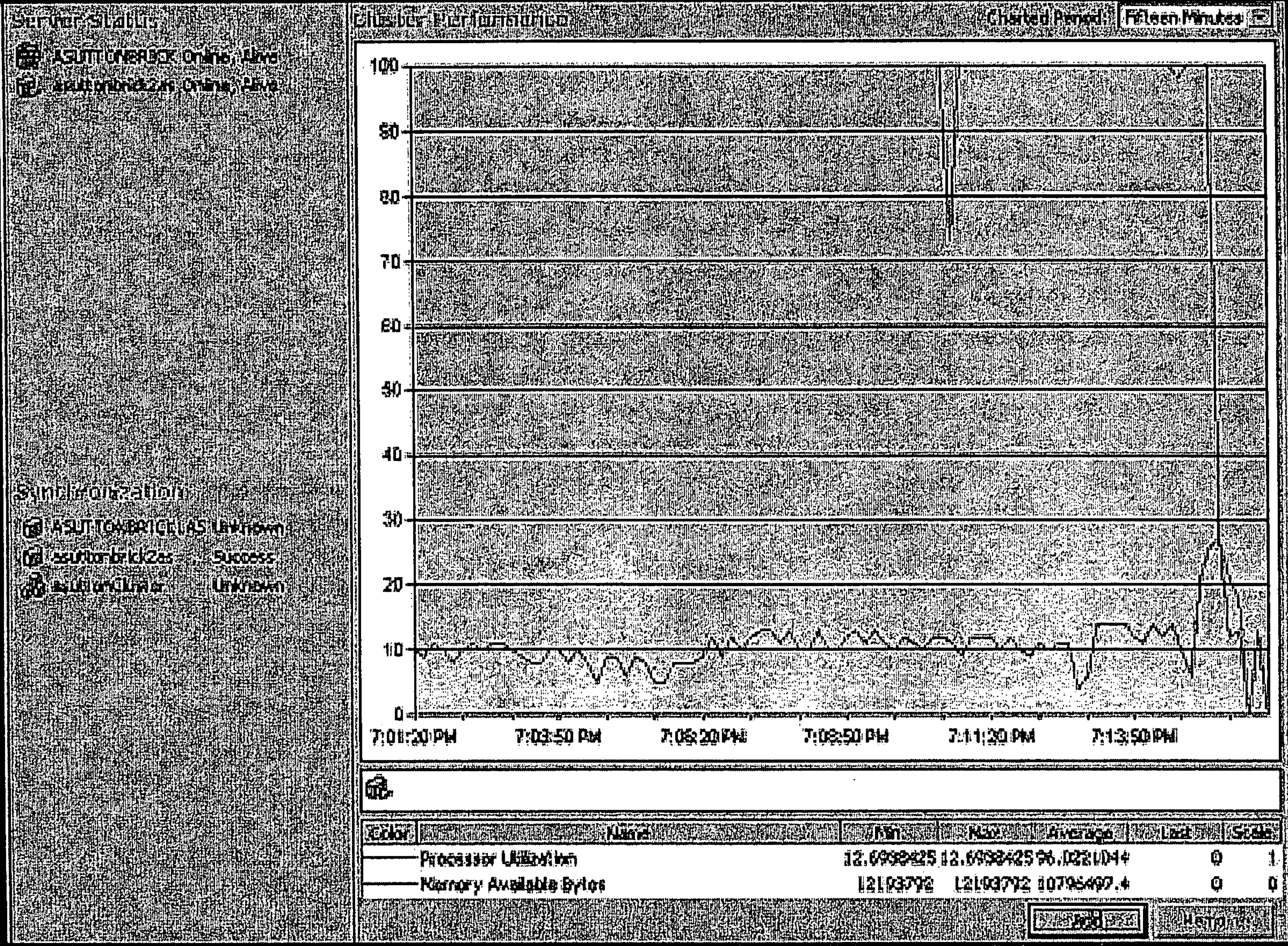
Monitoring

- Integrated monitoring tools
  - Roll up perf, event, log data from across multiple servers into integrated console
  - Allow drill down into specific machines, resources
  - NON GOAL: Usage Analysis / Data Mining
- Self-healing, Self-tuning
  - Monitor health of servers and applications
  - Set thresholds for acceptable performance
  - Fix it if we can

AppCenter Performance Monitor

- Real-Time to Intraday to Weeks to Years
  - Rollup data to store larger time periods
  - Interpolate down large time periods to fit chart
- Graphing View
  - Can select which counters to graph
  - Counters in a 10-15 preset list.
  - Last value, avg/sum, min, max across servers
- Default charts in main UI
- Custom charts in separate windows

Performance Monitor UI



Server Status
ASUTTONBRICK Online, Alive
asuttonbrick2as Online, Alive

Synchronization
ASUTTONBRICKCLAS Unknown
asuttonbrick2as Success
asuttonCluster Unknown

Cluster Performance

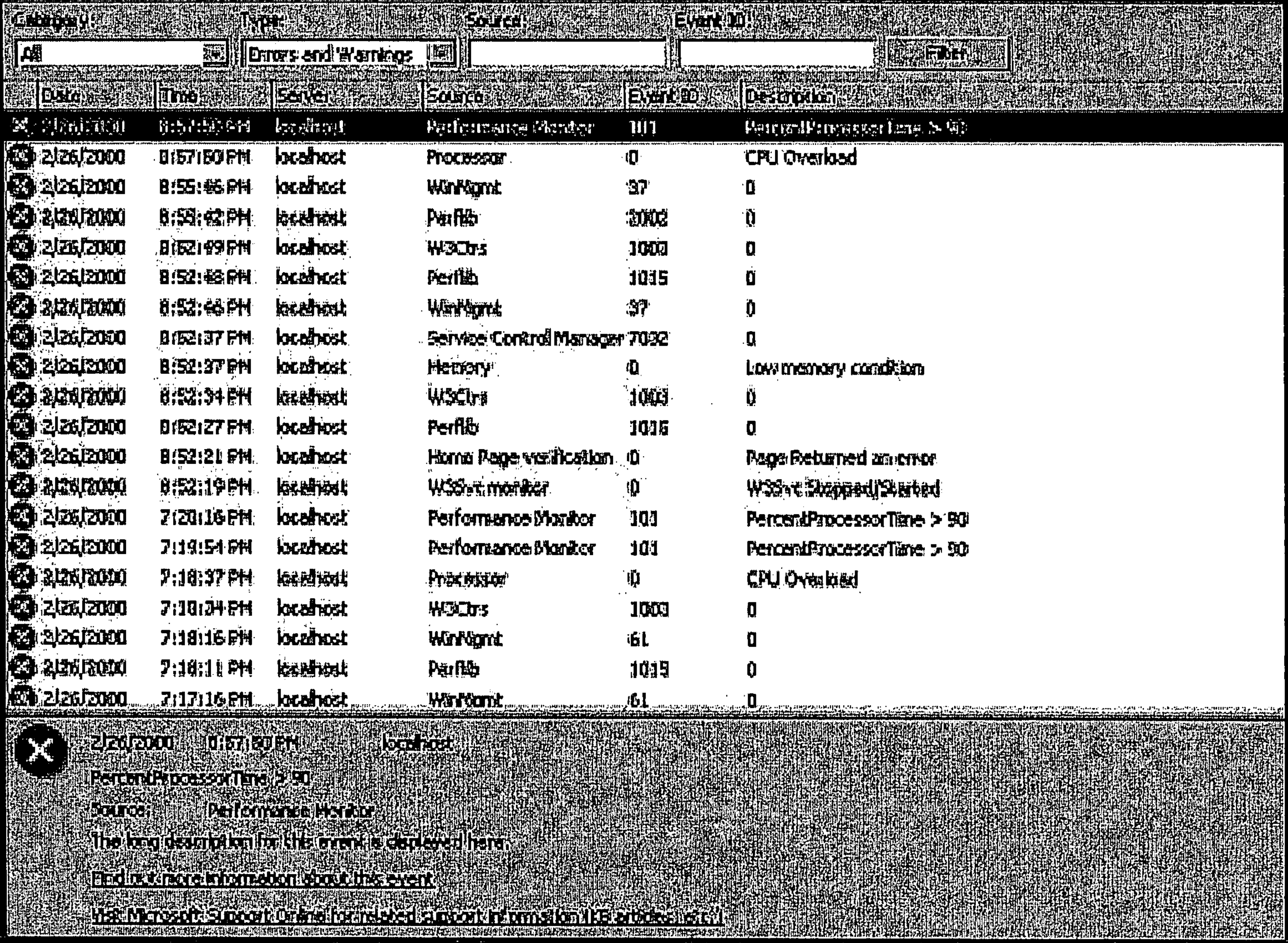
Color	Name	Min	Max	Average	Last	Scale
——	Processor Utilization	12.6998425	12.6998425	96.0221044	0	1
——	Memory Available Bytes	121093792	121093792	10795497.4	0	0

Application Center 2000

Viewing the Logs

- View event logs for cluster or per server
  - Log agent does distributed query, aggregates, and sorts
- Cluster Event Viewer (AppCenter, Windows, etc.)
  - Filter by source, type, date, server, severity

Log Viewer UI



	Date	Time	Server	Source	Event ID	Description
☒	2/26/2000	8:57:50 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
☒	2/26/2000	8:57:50 PM	localhost	Processor	0	CPU Overload
☒	2/26/2000	8:55:46 PM	localhost	WinMgmt	37	0
☒	2/26/2000	8:53:42 PM	localhost	Perflib	2002	0
☒	2/26/2000	8:52:49 PM	localhost	W3Ctrs	1000	0
☒	2/26/2000	8:52:48 PM	localhost	Perflib	1015	0
☒	2/26/2000	8:52:46 PM	localhost	WinMgmt	37	0
☒	2/26/2000	8:52:37 PM	localhost	Service Control Manager	7022	0
☒	2/26/2000	8:52:37 PM	localhost	Memory	0	Low memory condition
☒	2/26/2000	8:52:34 PM	localhost	W3Ctrs	1003	0
☒	2/26/2000	8:52:27 PM	localhost	Perflib	1016	0
☒	2/26/2000	8:52:21 PM	localhost	Home Page verification	0	Page Returned an error
☒	2/26/2000	8:52:19 PM	localhost	W3Svc monitor	0	W3Svc Stopped/Started
☒	2/26/2000	7:20:16 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
☒	2/26/2000	7:19:54 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
☒	2/26/2000	7:18:37 PM	localhost	Processor	0	CPU Overload
☒	2/26/2000	7:18:24 PM	localhost	W3Ctrs	1003	0
☒	2/26/2000	7:18:16 PM	localhost	WinMgmt	61	0
☒	2/26/2000	7:18:11 PM	localhost	Perflib	1015	0
☒	2/26/2000	7:17:16 PM	localhost	WinMgmt	61	0

2/26/2000 8:57:50 PM localhost

PercentProcessorTime > 90

Source: Performance Monitor

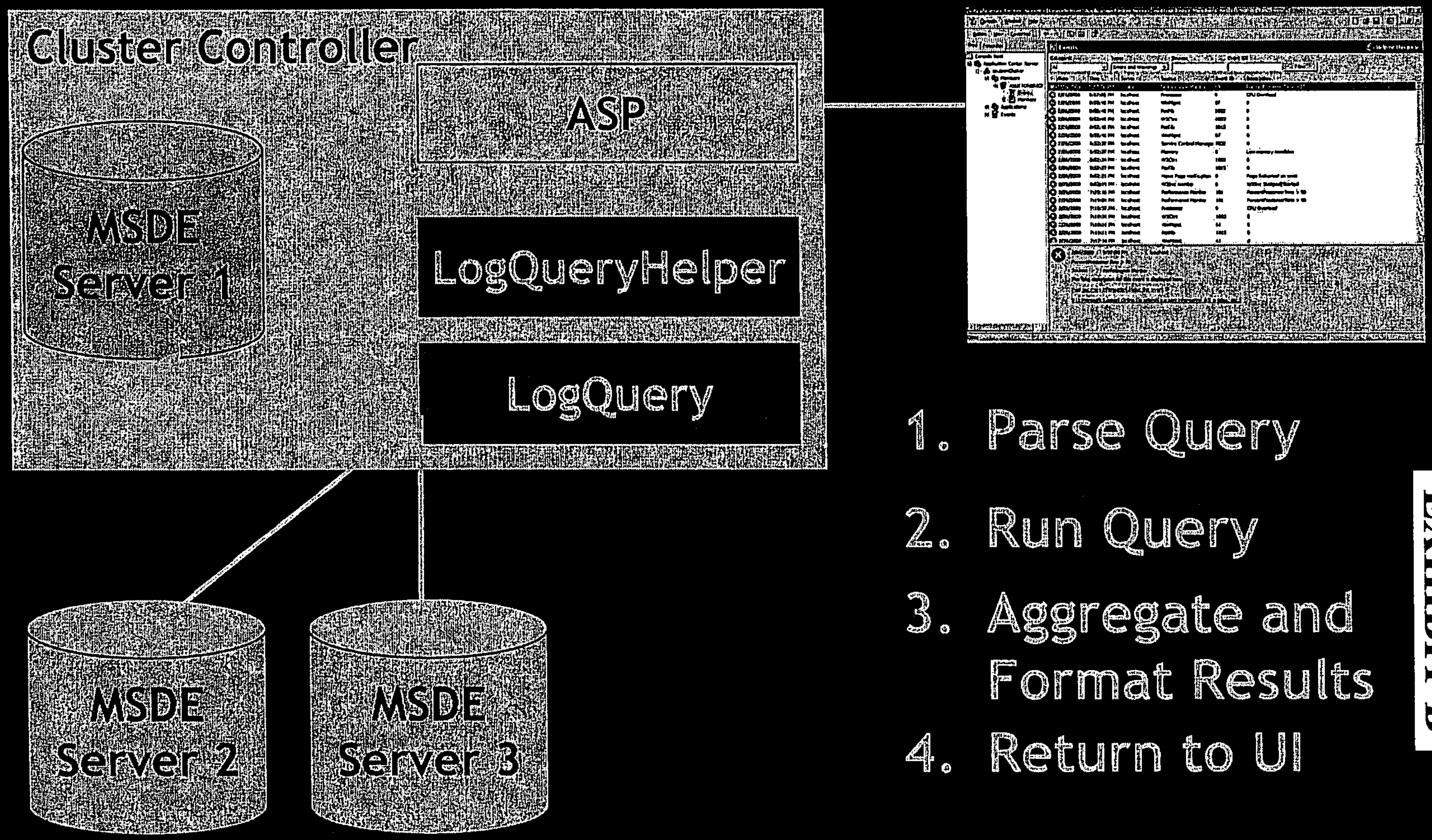
The long description for this event is displayed here.

Find out more information about this event

Visit Microsoft Support Online for related support information (18 articles listed)

Application Center 2000

Distributed Query Architecture



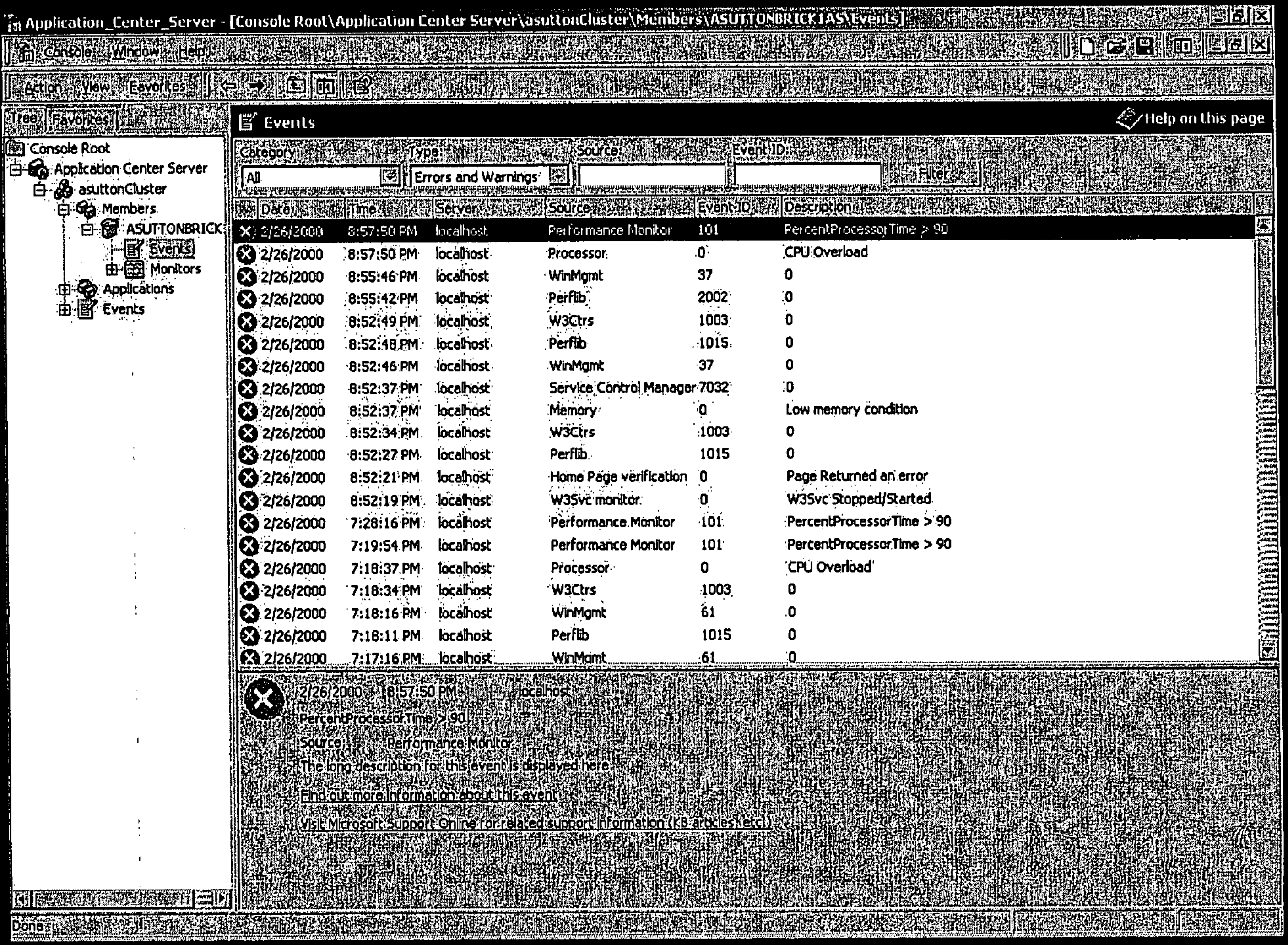
1. Parse Query
2. Run Query
3. Aggregate and Format Results
4. Return to UI

EXHIBIT B

Eventing Logging Monitoring

Event Viewer

ApplicationCenter 2000



Events

Category: All | Type: Errors and Warnings | Source: | Event ID:

Date	Time	Server	Source	Event ID	Description
2/26/2000	8:57:50 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
2/26/2000	8:57:50 PM	localhost	Processor	0	CPU Overload
2/26/2000	8:55:46 PM	localhost	WinMgmt	37	0
2/26/2000	8:55:42 PM	localhost	Perflib	2002	0
2/26/2000	8:52:49 PM	localhost	W3Ctrs	1003	0
2/26/2000	8:52:48 PM	localhost	Perflib	1015	0
2/26/2000	8:52:46 PM	localhost	WinMgmt	37	0
2/26/2000	8:52:37 PM	localhost	Service Control Manager	7032	0
2/26/2000	8:52:37 PM	localhost	Memory	0	Low memory condition
2/26/2000	8:52:34 PM	localhost	W3Ctrs	1003	0
2/26/2000	8:52:27 PM	localhost	Perflib	1015	0
2/26/2000	8:52:21 PM	localhost	Home Page verification	0	Page Returned an error
2/26/2000	8:52:19 PM	localhost	W3Svc monitor	0	W3Svc Stopped/Started
2/26/2000	7:28:16 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
2/26/2000	7:19:54 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
2/26/2000	7:18:37 PM	localhost	Processor	0	'CPU Overload'
2/26/2000	7:18:34 PM	localhost	W3Ctrs	1003	0
2/26/2000	7:18:16 PM	localhost	WinMgmt	61	0
2/26/2000	7:18:11 PM	localhost	Perflib	1015	0
2/26/2000	7:17:16 PM	localhost	WinMgmt	61	0

2/26/2000 8:57:50 PM localhost

PercentProcessorTime > 90

Source: Performance Monitor

The long description for this event is displayed here.

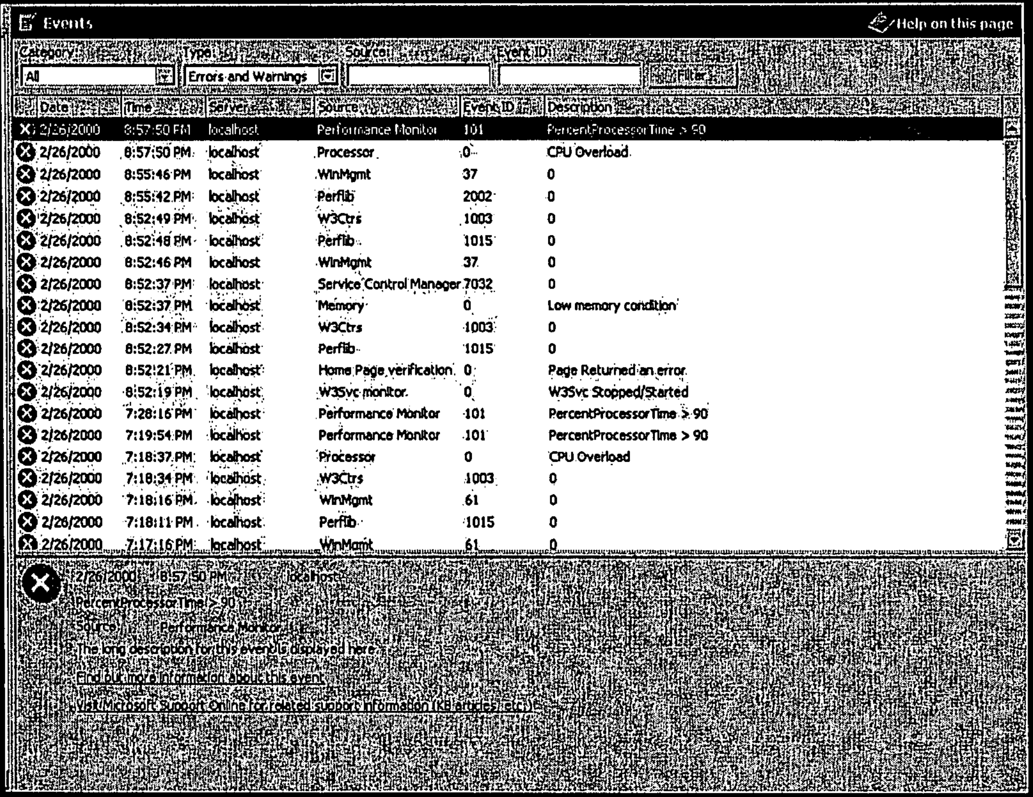
Find out more information about this event

Visit Microsoft Support Online for related support information (KB articles, etc.)

Eventing > Logging > Monitoring

Events: List View

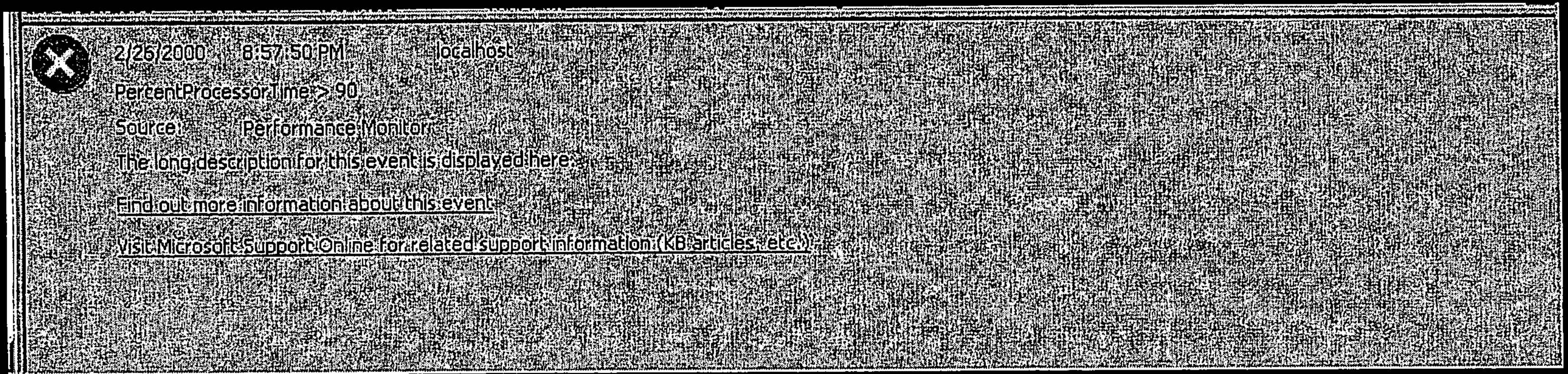
- Sorted by Date
- Severity
- Server
- Source
- Event ID
- Description



Date	Time	Server	Source	Event ID	Description
☒ 2/26/2000	8:57:50 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
☒ 2/26/2000	8:57:50 PM	localhost	Processor	0	CPU Overload
☒ 2/26/2000	8:55:46 PM	localhost	WinMgmt	37	0
☒ 2/26/2000	8:55:42 PM	localhost	Perflib	2002	0
☒ 2/26/2000	8:52:49 PM	localhost	W3Ctrs	1003	0
☒ 2/26/2000	8:52:48 PM	localhost	Perflib	1015	0
☒ 2/26/2000	8:52:46 PM	localhost	WinMgmt	37	0
☒ 2/26/2000	8:52:37 PM	localhost	Service Control Manager	7032	0
☒ 2/26/2000	8:52:37 PM	localhost	Memory	0	Low memory condition
☒ 2/26/2000	8:52:34 PM	localhost	W3Ctrs	1003	0
☒ 2/26/2000	8:52:27 PM	localhost	Perflib	1015	0
☒ 2/26/2000	8:52:21 PM	localhost	Home Page verification	0	Page Returned an error
☒ 2/26/2000	8:52:19 PM	localhost	W3Svc monitor	0	W3Svc Stopped/Started
☒ 2/26/2000	7:28:16 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
☒ 2/26/2000	7:19:54 PM	localhost	Performance Monitor	101	PercentProcessorTime > 90
☒ 2/26/2000	7:18:37 PM	localhost	Processor	0	CPU Overload
☒ 2/26/2000	7:18:34 PM	localhost	W3Ctrs	1003	0
☒ 2/26/2000	7:18:16 PM	localhost	WinMgmt	61	0
☒ 2/26/2000	7:18:11 PM	localhost	Perflib	1015	0
☒ 2/26/2000	7:17:16 PM	localhost	WinMgmt	61	0

2/26/2000 8:57:50 PM localhost
PercentProcessorTime > 90
Source: Performance Monitor
The long description for this event is displayed here.
Find out more information about this event
Visit Microsoft Support Online for related support information (KB articles, etc.)

Events: Details



2/26/2000 8:57:50 PM localhost

PercentProcessorTime > 90

Source: Performance Monitor

The long description for this event is displayed here.

Find out more information about this event

Visit Microsoft Support Online for related support information (KB articles, etc.)

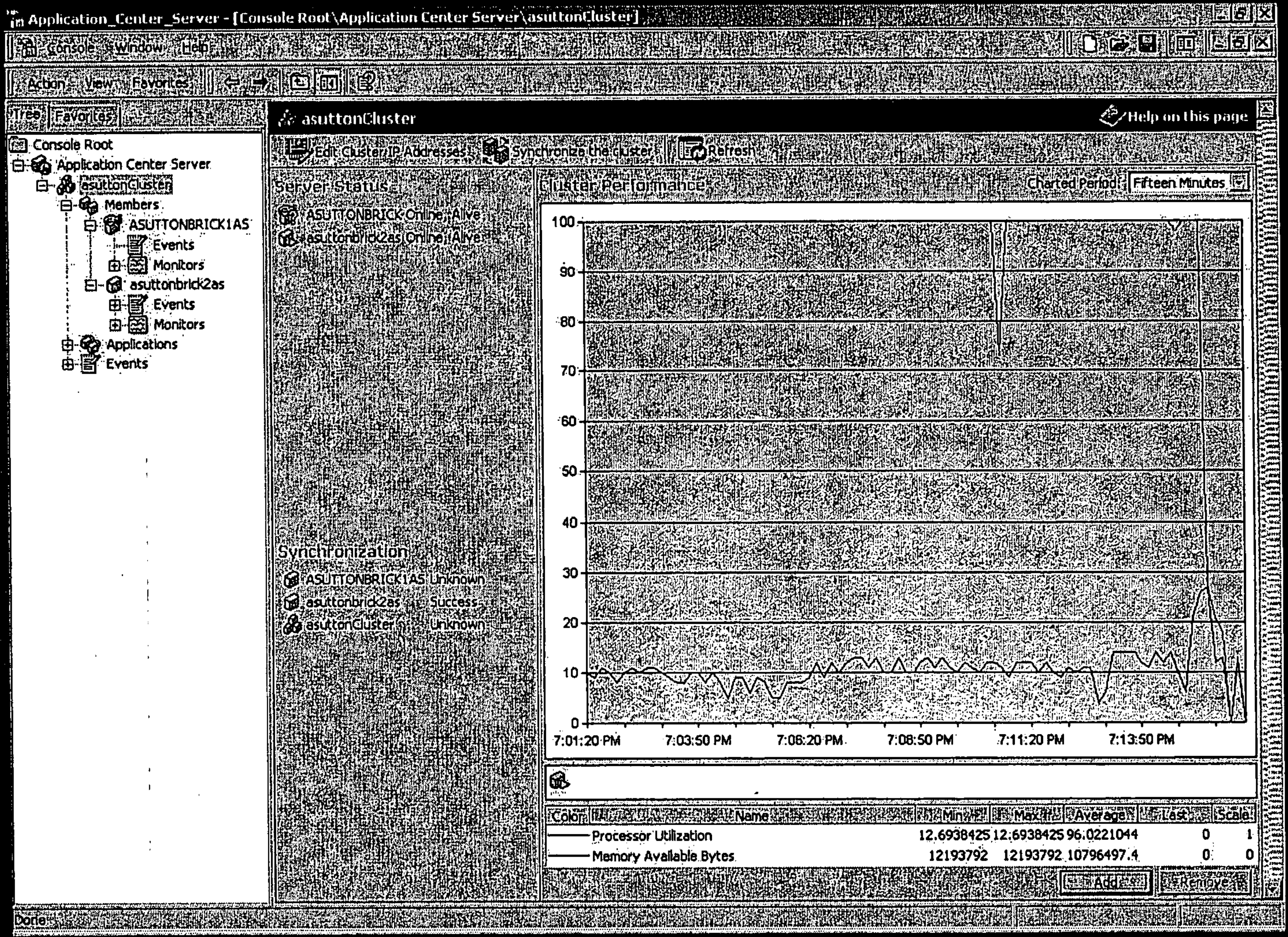
- Severity, date, time, server
- Description
- Category, subcategory
- Long Message
- Links to help and support

Cluster Event Rollup

- Rollup in LogQueryHelper
  - Events aggregated across the cluster
  - Sorted by time
- Creates virtual record set
  - Paging in the uses same query
  - Pass GUID of last record seen as bookmark
  - Page up, down, top, bottom
- Unreachable server is "soft error"
  - Available data returned with an error

Eventing > Logging > Monitoring

Performance Viewer



Server Status
ASUTTONBRICK Online, Alive
asuttonbrick2as Online, Alive

Synchronization
ASUTTONBRICK1AS Unknown
asuttonbrick2as Success
asuttonCluster Unknown

Color	Name	Min	Max	Average	Last	Scale
——	Processor Utilization	12.6938425	12.6938425	96.0221044	0	1
——	Memory Available Bytes	12193792	12193792	10796497.4	0	0

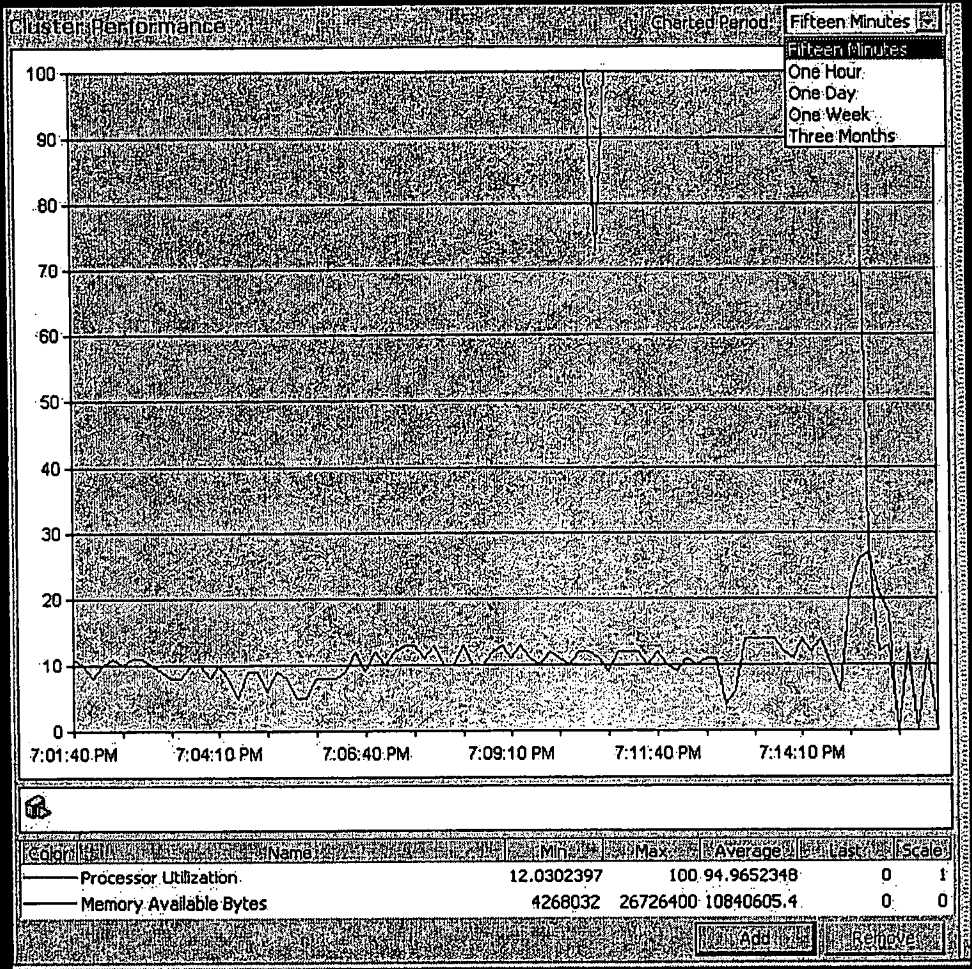
ApplicationCenter 2000

Microsoft Confidential

Eventing Logging Monitoring

Performance Viewer

- Add Counters
- Time periods
  - 15 minutes
  - 1 hour
  - 1 day
  - 1 week
  - 3 months
- Auto scaling
- Default counters
- Persist selection



Color	Name	Min	Max	Average	Last	Scale
——	Processor Utilization	12.0302397	100	94.9652348	0	1
——	Memory Available Bytes	4268032	26726400	10840605.4	0	0

ApplicationCenter 2000

Microsoft Confidential

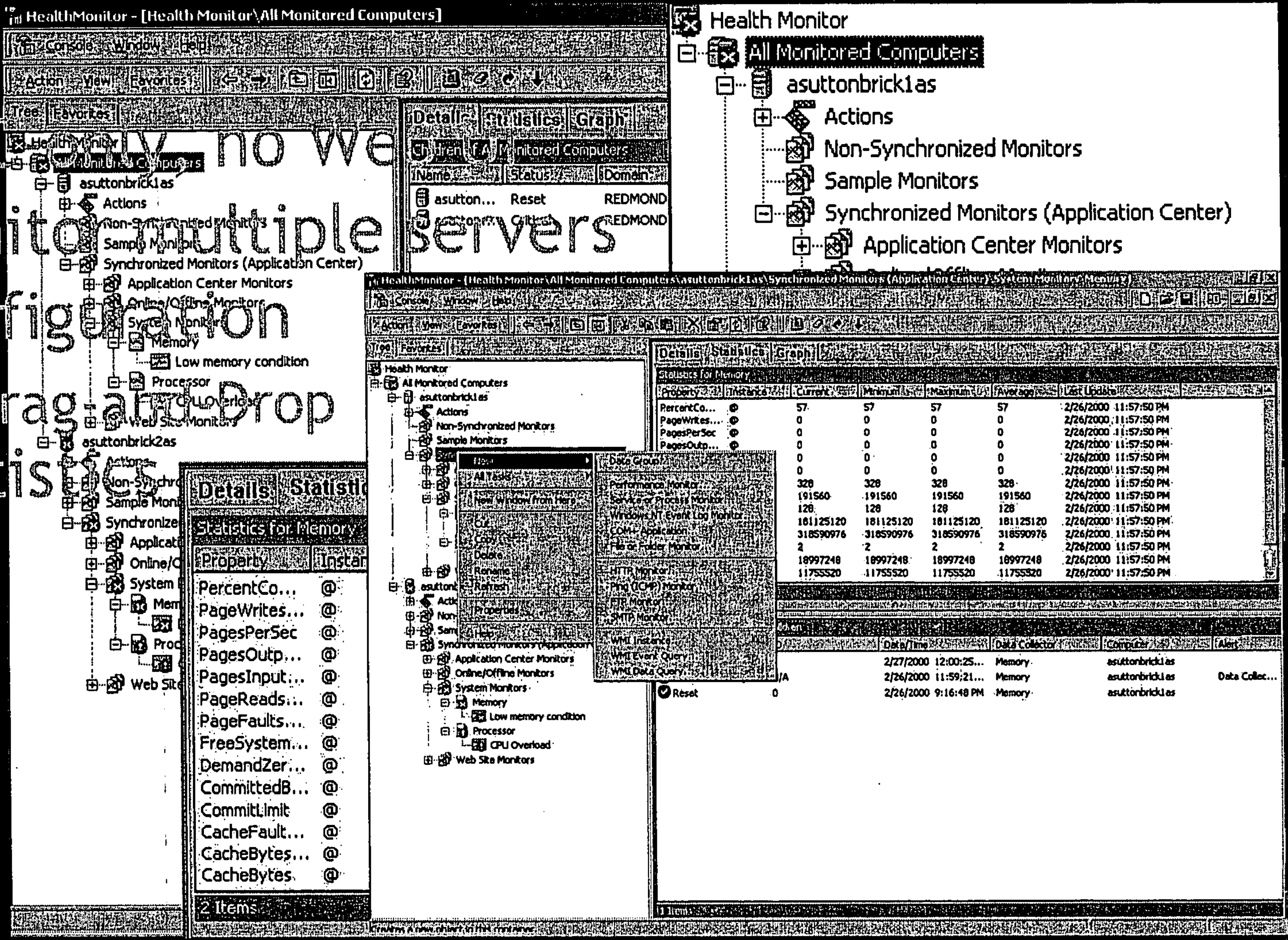
Performance Viewer Cluster Rollup

- Aggregation method in counter configuration
  - 0 - None
  - 1 - Average of Values
  - 2 - Sum of Values
  - 3 - Last Value
  - 4 - Min Value
  - 5 - Max Value
- Cumulative counters reset to 0 each session
  - Different from perfmon
  - Growth vs. spikes
- Can’t show one counter across server

Eventing › Logging › Monitoring

Health Monitor Console

- MMC only, no we
- Moni multiple servers
- Configuration
  - Drag and Drop
- Statistics



Health Monitor
- All Monitored Computers
  - asuttonbrick1as
    - Actions
    - Non-Synchronized Monitors
    - Sample Monitors
    - Synchronized Monitors (Application Center)
      - Application Center Monitors
      - Online/Offline Monitors
      - System Monitors
        - Memory
          - Low memory condition
        - Processor
          - CPU Overload
      - Web Site Monitors

Statistics for Memory

Property	Instance
PercentCo...	@
PageWrites...	@
PagesPerSec	@
PagesOutp...	@
PagesInput...	@
PageReads...	@
PageFaults...	@
FreeSystem...	@
DemandZer...	@
CommittedB...	@
CommitLimit	@
CacheFault...	@
CacheBytes...	@
CacheBytes	@

Property	Instance	Current	Minimum	Maximum	Average	Last Update
PercentCo...	@	57	57	57	57	2/26/2000 11:57:50 PM
PageWrites...	@	0	0	0	0	2/26/2000 11:57:50 PM
PagesPerSec	@	0	0	0	0	2/26/2000 11:57:50 PM
PagesOutp...	@	0	0	0	0	2/26/2000 11:57:50 PM
		0	0	0	0	2/26/2000 11:57:50 PM
		0	0	0	0	2/26/2000 11:57:50 PM
		328	328	328	328	2/26/2000 11:57:50 PM
		191560	191560	191560	191560	2/26/2000 11:57:50 PM
		128	128	128	128	2/26/2000 11:57:50 PM
		181125120	181125120	181125120	181125120	2/26/2000 11:57:50 PM
		318590976	318590976	318590976	318590976	2/26/2000 11:57:50 PM
		2	2	2	2	2/26/2000 11:57:50 PM
		18997248	18997248	18997248	18997248	2/26/2000 11:57:50 PM
		11755520	11755520	11755520	11755520	2/26/2000 11:57:50 PM

		Date/Time	Data Collector	Computer	Alert
		2/27/2000 12:00:25...	Memory	asuttonbrick1as	
	/A	2/26/2000 11:59:21...	Memory	asuttonbrick1as	Data Collec...
Reset	0	2/26/2000 9:16:48 PM	Memory	asuttonbrick1as	

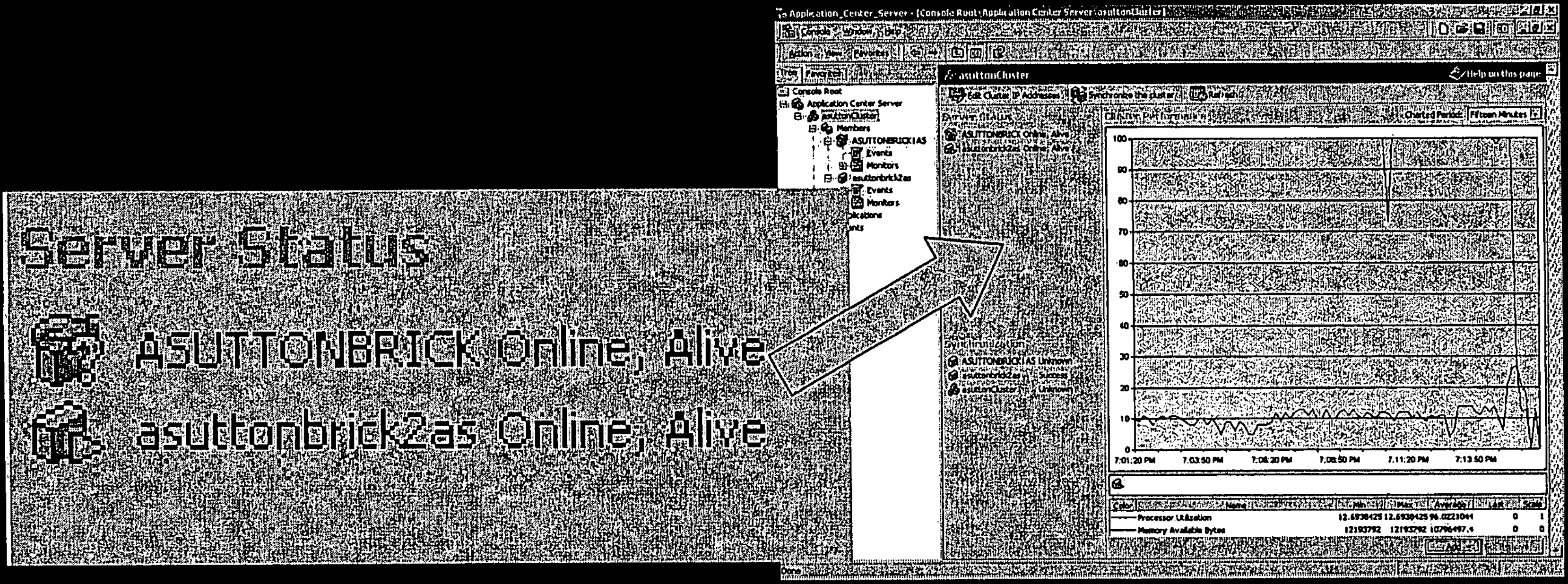
ApplicationCenter 2000

Microsoft Confidential

Eventing | Logging | Monitoring

Server Health Rollup

- Top-level view of server health
  - System status from HealthMon
  - Not the online/offline group



Server Status

ASUTTONBRICK Online, Alive

asuttonbrick2as Online, Alive

Application Center 2000

Microsoft Confidential

EXHIBIT C

Microsoft PDC 2000

Professional Developers Conference

the defining *point*

Application Center 2000: Ensuring Reliability/Availability of Web and Component Applications

Justin Grant
Lead Program Manager
Application Center

Agenda...

- Application Center 2000 overview
- Distributed Application Monitoring
- WMI: the infrastructure of management of Windows DNA and .NET
- Managing and guaranteeing application availability with Application Center
  - Performance Management
  - Event Management
  - Health Monitor for automated "lights-out" recovery from application or system failures

Scale-Out

- Software scale-out model works
  - Cost-effective using commodity hardware
  - Scalable by adding more servers
  - Highly reliable
- But…
  - Ongoing operational costs
  - Difficult to deploy apps
  - Difficult to monitor apps for proactive management
  - Difficult to test apps
- **Application Center 2000: Lower cost & complexity of scale out**

AC 2000: Functional Overview

- Simple *Application* Management
  - ☐ Single application image
  - ☐ Deployment and synchronization
- Software Scaling Made Easy
  - ☐ On-demand scalability
  - ☐ Integrated load balancing management
- Mission-Critical Availability
  - ☐ No single point of failure
  - ☐ Performance and health monitoring

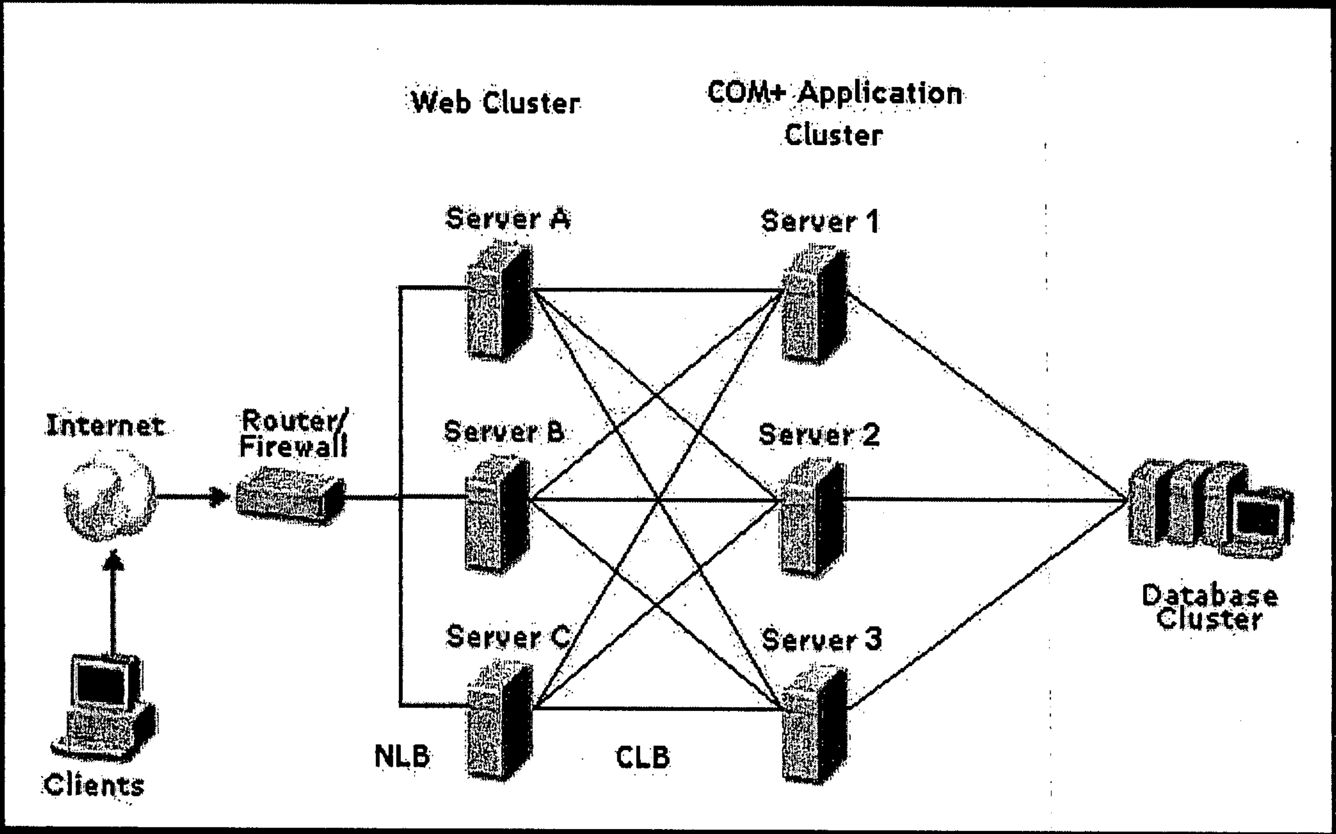
Platform Support

- WinDNA 2000
    - Win2K Server, Advanced, DataCenter
    - IIS 5, Active Server Pages (ASP)
    - COM+ 1.0
    - WMI
- .NET
    - Load Balancing for Web Services, ASP+ integrated with application-level monitoring
    - Richer instrumentation of .NET framework
    - Easier instrumentation of .NET applications
    - More integration with Application Center

Application Center Scenarios

- .COM’s
- Hosting Providers & ASP’s
- Intranet
- Web Services

Application Center Topology



web + biz-logic + data
tier tier tier

Application Center 2000: High-Availability Architecture

- "Shared Nothing" clusters
  - No single point of failure
  - Application availability not affected if Cluster Controller fails
  - Fault-tolerant load balancing protects users from server or application failures
- Local Monitoring
  - Every server monitors itself
  - If critical failure detected, server can remove itself from load balancing
- Remote Monitoring
  - Rich application-level (HTTP,TCP/IP,etc.) and network level (ICMP,SNMP,etc.) remote monitoring

Monitoring For Availability

Goal: Customers can access your site

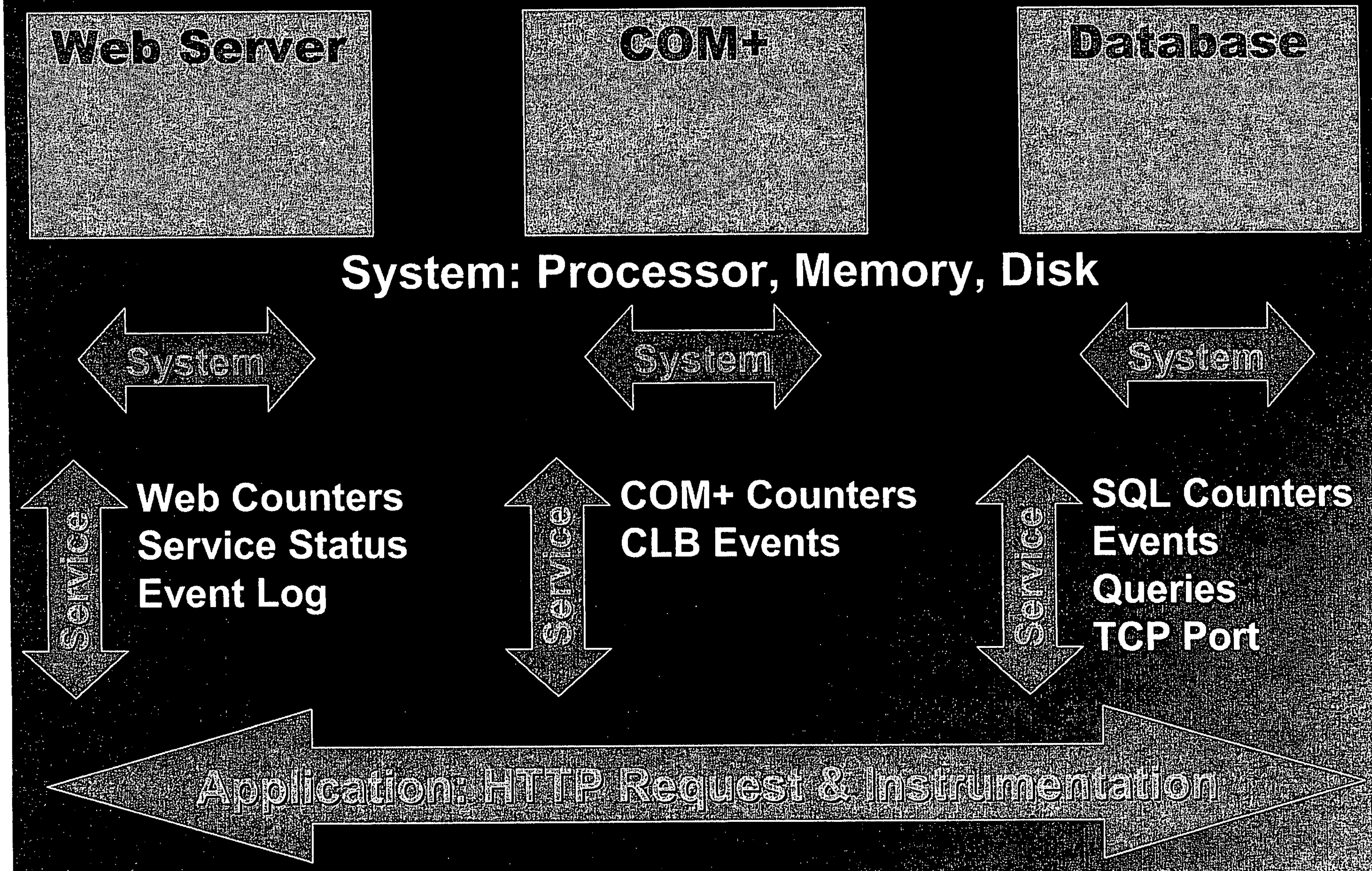

Detect

Analyze

Fix

WMI + Application Center

Monitoring Health



Web Server

COM+

Database

System: Processor, Memory, Disk

System

System

System

Service

Web Counters
Service Status
Event Log

Service

COM+ Counters
CLB Events

Service

SQL Counters
Events
Queries
TCP Port

Application: HTTP Request & Instrumentation

Demo: System Health

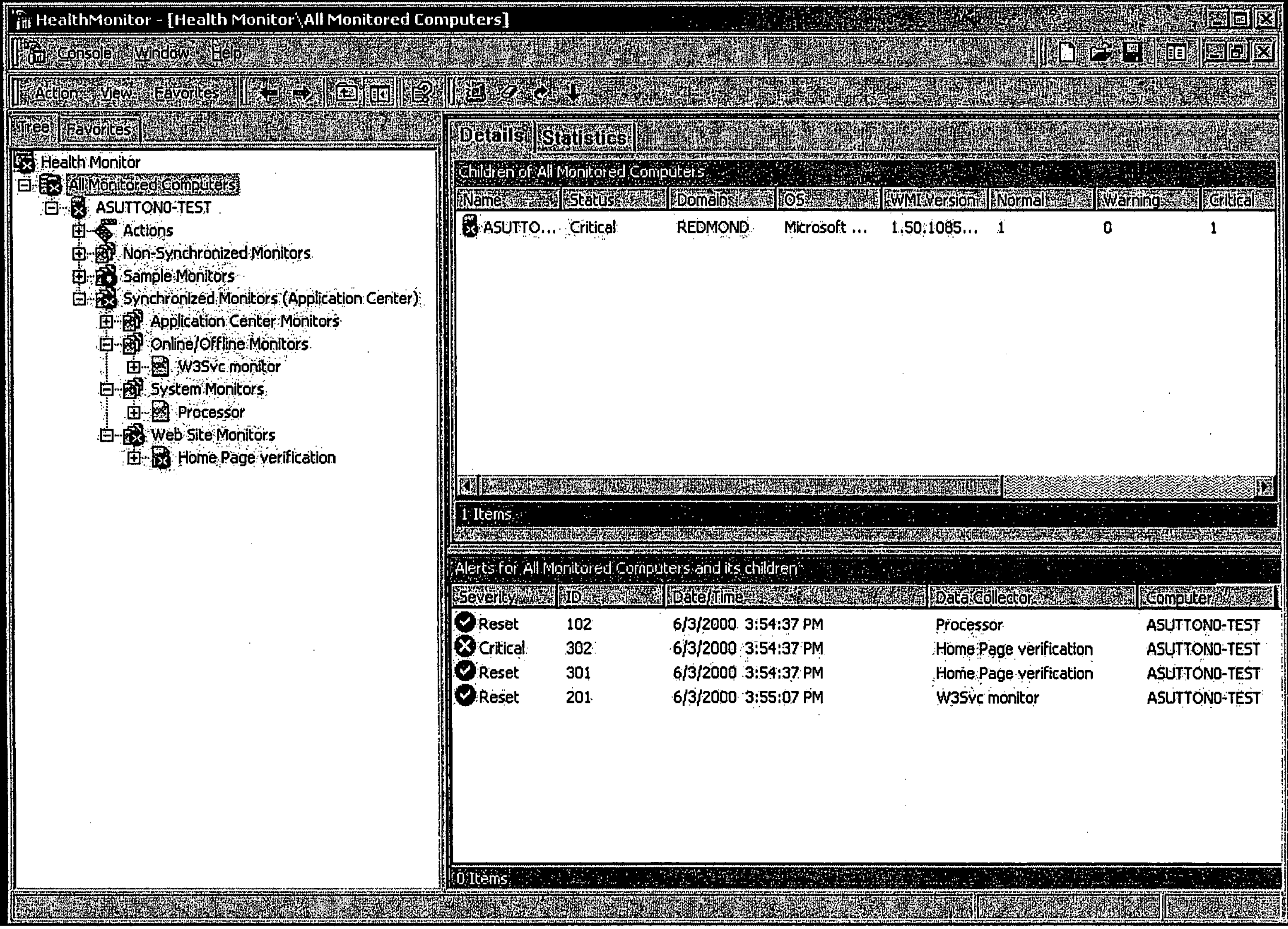
Detect

Analyze

Fix

- Create monitor for CPU overload
- Associate action
- Generate CPU load
- Health Monitor console
- E-mail to administrator

Using Health Monitor



- Health Monitor
  - All Monitored Computers
    - ASUTTON0-TEST
      - Actions
      - Non-Synchronized Monitors
      - Sample Monitors
      - Synchronized Monitors (Application Center)
        - Application Center Monitors
        - Online/Offline Monitors
          - W3Svc monitor
        - System Monitors
          - Processor
        - Web Site Monitors
          - Home Page verification

Children of All Monitored Computers

Name	Status	Domain	OS	WMI Version	Normal	Warning	Critical
ASUTTO...	Critical	REDMOND	Microsoft ...	1.50.1085...	1	0	1

1 Items

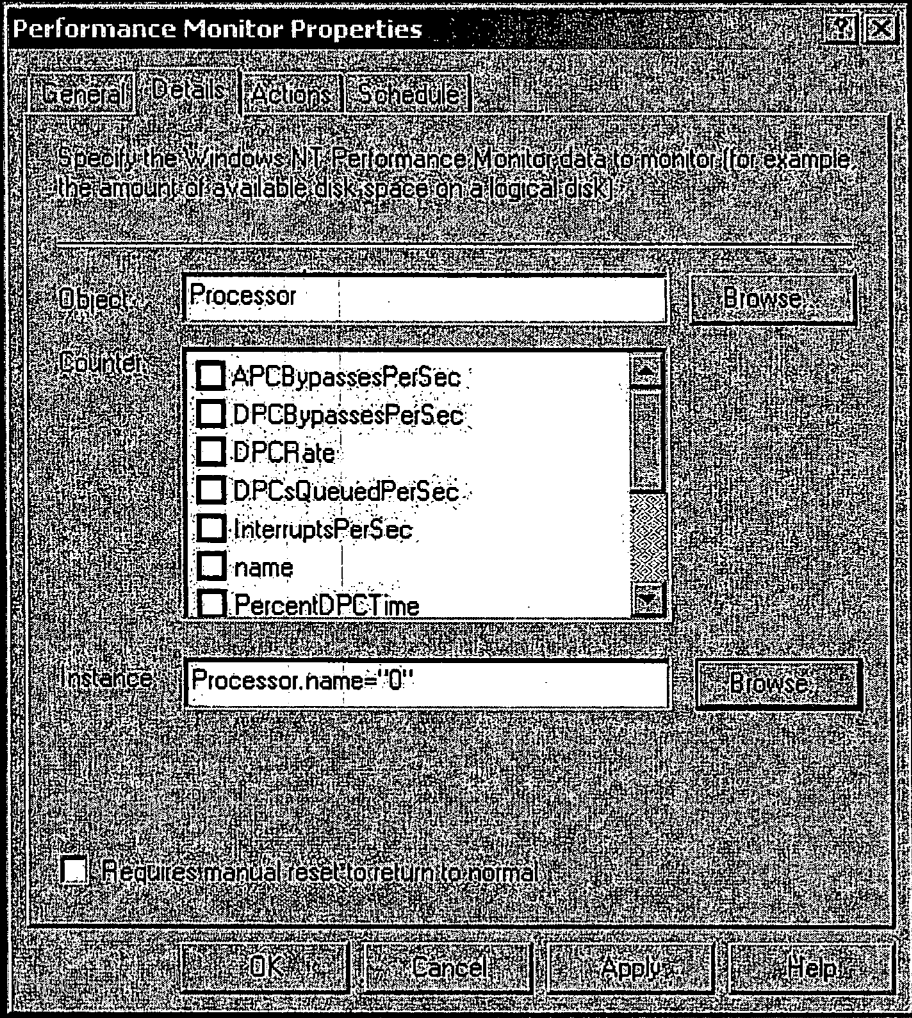
Alerts for All Monitored Computers and its children

Severity	ID	Date/Time	Data Collector	Computer
Reset	102	6/3/2000 3:54:37 PM	Processor	ASUTTON0-TEST
Critical	302	6/3/2000 3:54:37 PM	Home Page verification	ASUTTON0-TEST
Reset	301	6/3/2000 3:54:37 PM	Home Page verification	ASUTTON0-TEST
Reset	201	6/3/2000 3:55:07 PM	W3Svc monitor	ASUTTON0-TEST

0 Items

Data Collectors

- Perf counter
- Event Log
- Service/Process
- COM+ Application
- HTTP requests
- File or Directory
- Ping
- TCP/IP port connect
- WMI instance, event and data queries



Specify the Windows NT Performance Monitor data to monitor (for example, the amount of available disk space on a logical disk).

Object: Processor

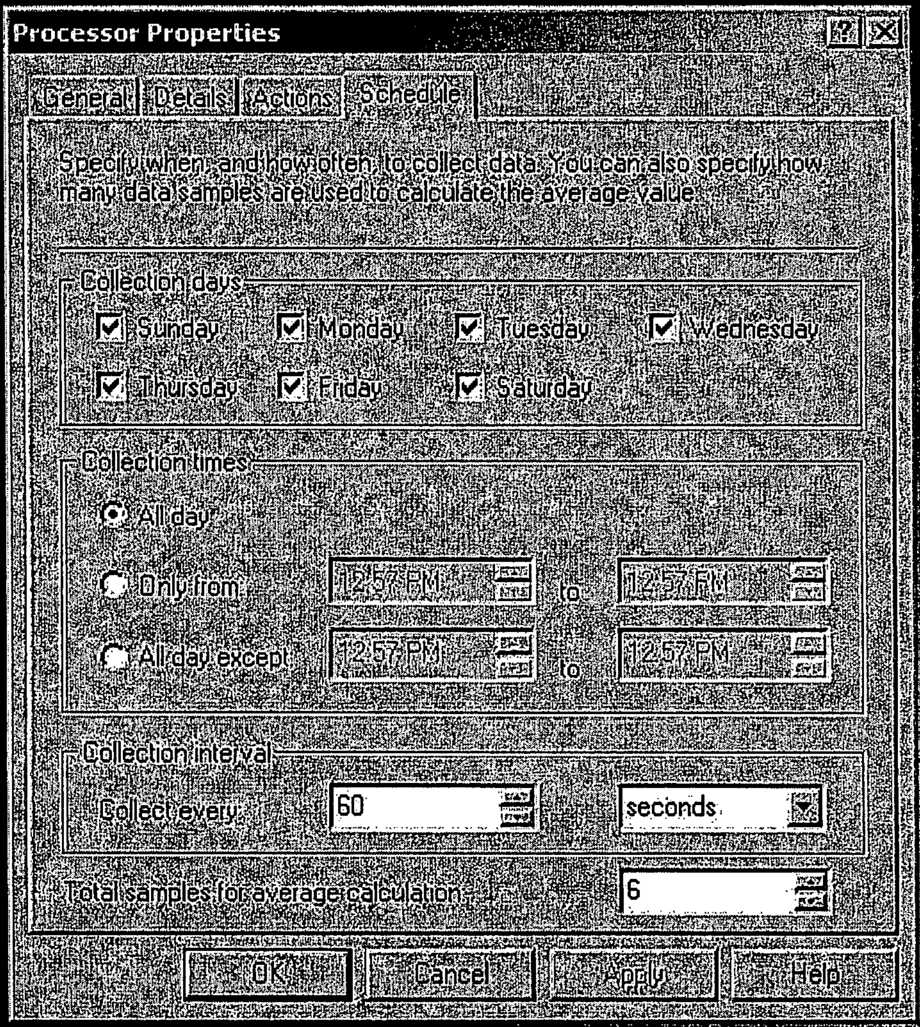
Counter:
☐ APCBypassesPerSec
☐ DPCBypassesPerSec
☐ DPCRate
☐ DPCsQueuedPerSec
☐ InterruptsPerSec
☐ name
☐ PercentDPCTime

Instance: Processor.name="0"

☐ Requires manual reset to return to normal

Schedule

- Collection Times
- Interval
- Average



Specify when, and how often, to collect data. You can also specify how many data samples are used to calculate the average value.

Collection days
☑ Sunday ☑ Monday ☑ Tuesday ☑ Wednesday
☑ Thursday ☑ Friday ☑ Saturday

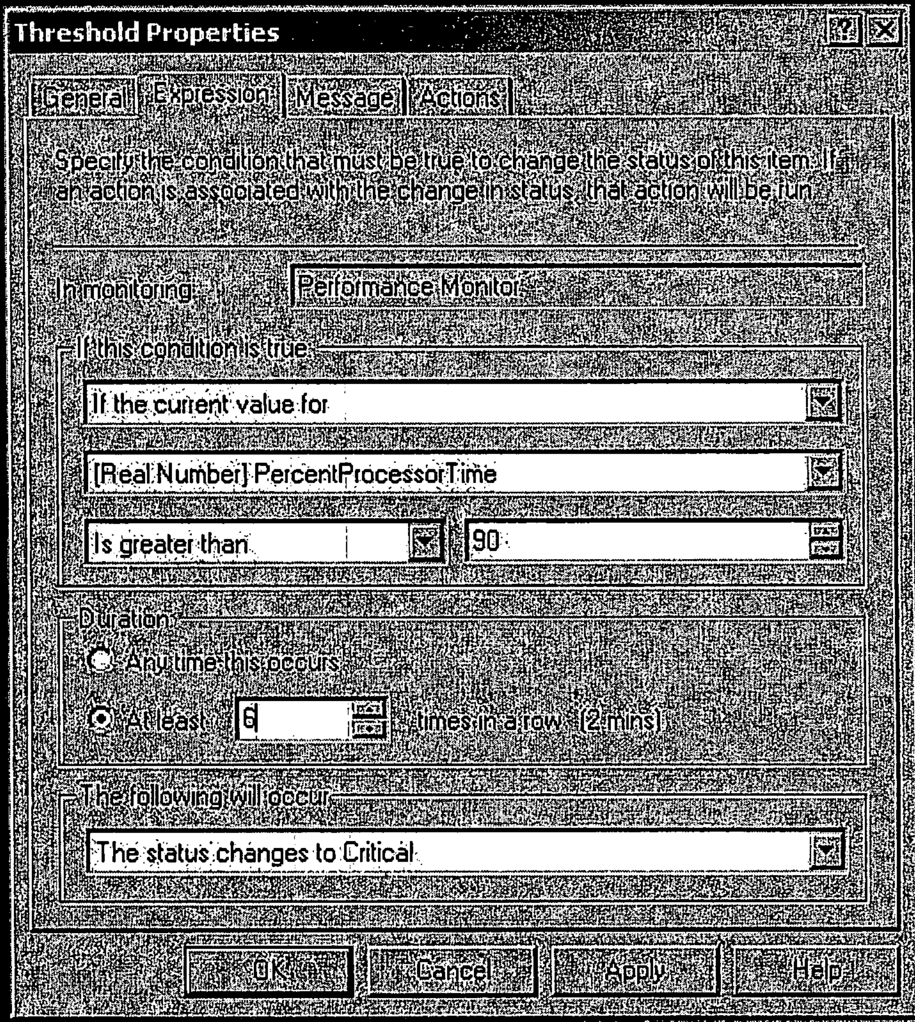
Collection times
● All day
○ Only from 12:57 PM to 12:57 PM
○ All day except 12:57 PM to 12:57 PM

Collection interval
Collect every: 60 seconds

Total samples for average calculation: 6

Thresholds

- Single property
- Current value, average, change
- Single or multiple occurrences
- State change
- Fires WMI Event



Specify the condition that must be true to change the status of this item. If an action is associated with the change in status, that action will be run.

In monitoring: Performance Monitor

If this condition is true:

If the current value for

[Real Number] PercentProcessorTime

Is greater than 90

Duration:

○ Any time this occurs

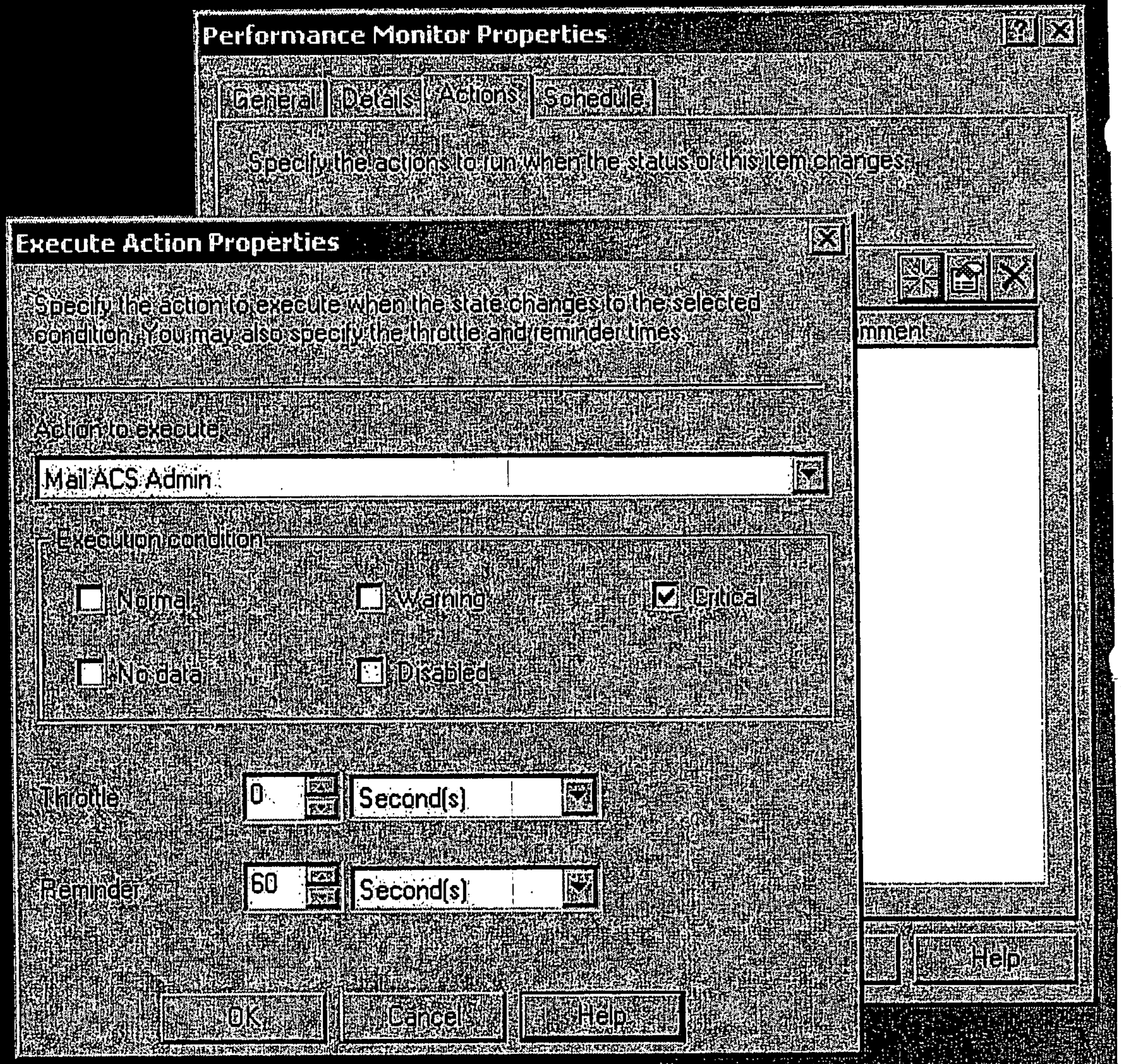
● At least 6 times in a row (2 mins)

The following will occur:

The status changes to Critical

Actions

- E-Mail
- Text log
- Windows log
- Command line
- Script



Performance Monitor Properties

Specify the actions to run when the status of this item changes.

Execute Action Properties

Specify the action to execute when the state changes to the selected condition. You may also specify the throttle and reminder times.

Action to execute: Mail ACS Admin

Execution condition:

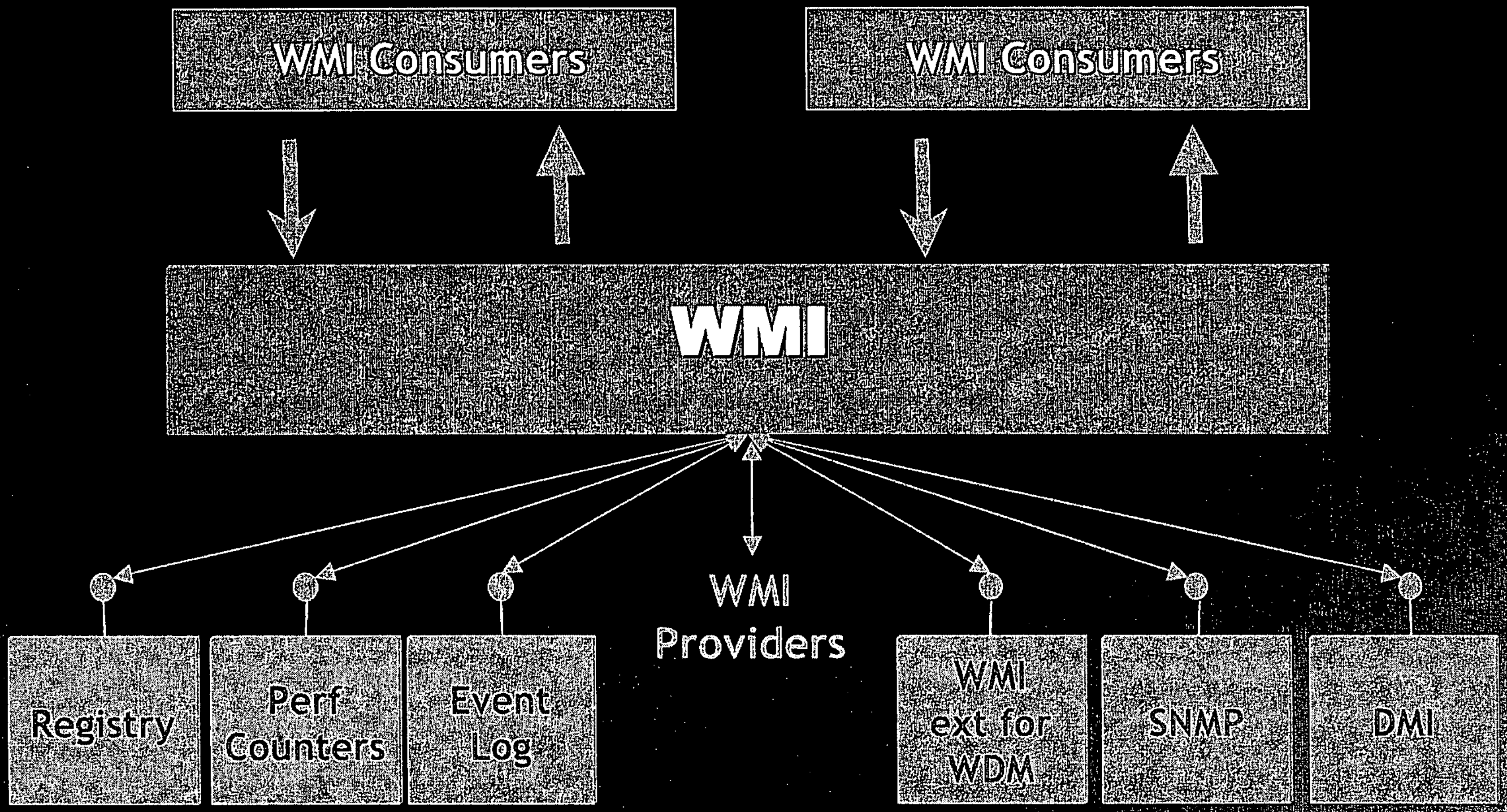
☐ Normal ☐ Warning ☑ Critical

☐ No data ☐ Disabled

Throttle: 0 Second(s)

Reminder: 60 Second(s)

WMI Overview



WMI Consumers

WMI Consumers

WMI

WMI Providers

Registry

Perf Counters

Event Log

WMI ext for WDM

SNMP

DMI

WMI Queries

All CIM objects are queryable

```
IWbemServices::ExecQuery
   ("select * from Win32LogicalDisk
         where Win32LogicalDisk.FreeSpace < 2000000")
```

SQL subset w/ new terms

Extensions for Discovery/Traversal of Schema relationships

```
IWbemServices::ExecQuery
   ("Associators of  {Win32_Service = 'DHCP'})
```

Event filtering (thresholds, aggregation, inheritance)

`within` XXX -- for specifying the tolerance for event delay

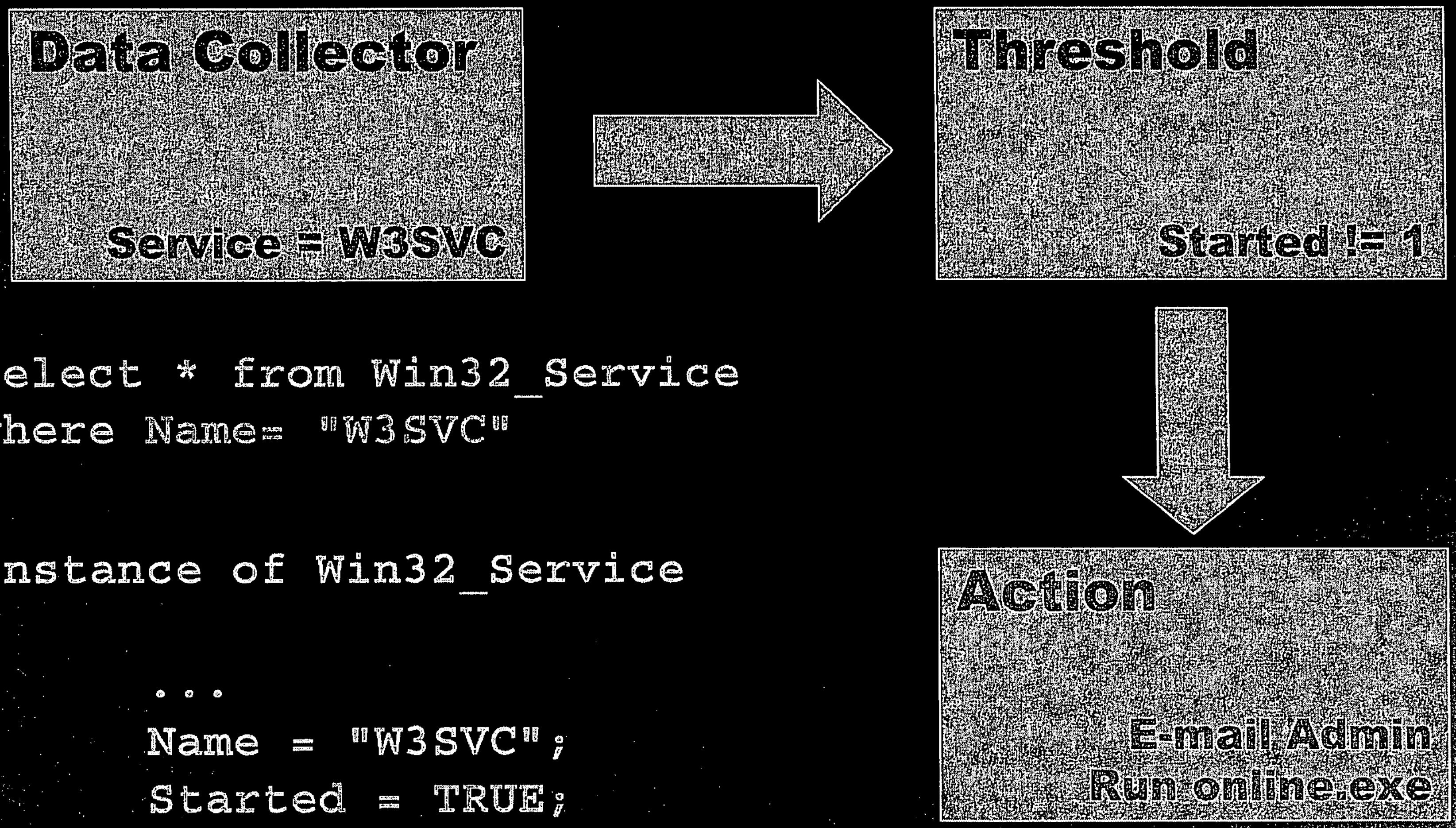
`isa` -- registration applies to all events from class (incl. derived classes)

`within` XXX (within group by clause) -- specifies aggregation interval

```
select * from __InstanceModificationEvent within 5
where TargetInstance isa Win32_LogicalDisk
group by DriveLetter
within 10 having count > 25
```

Tip: use `wbemtest` or `CIM Studio`

Health Monitor Data Flow



Data Collector

Service = W3SVC

Threshold

Started != 1

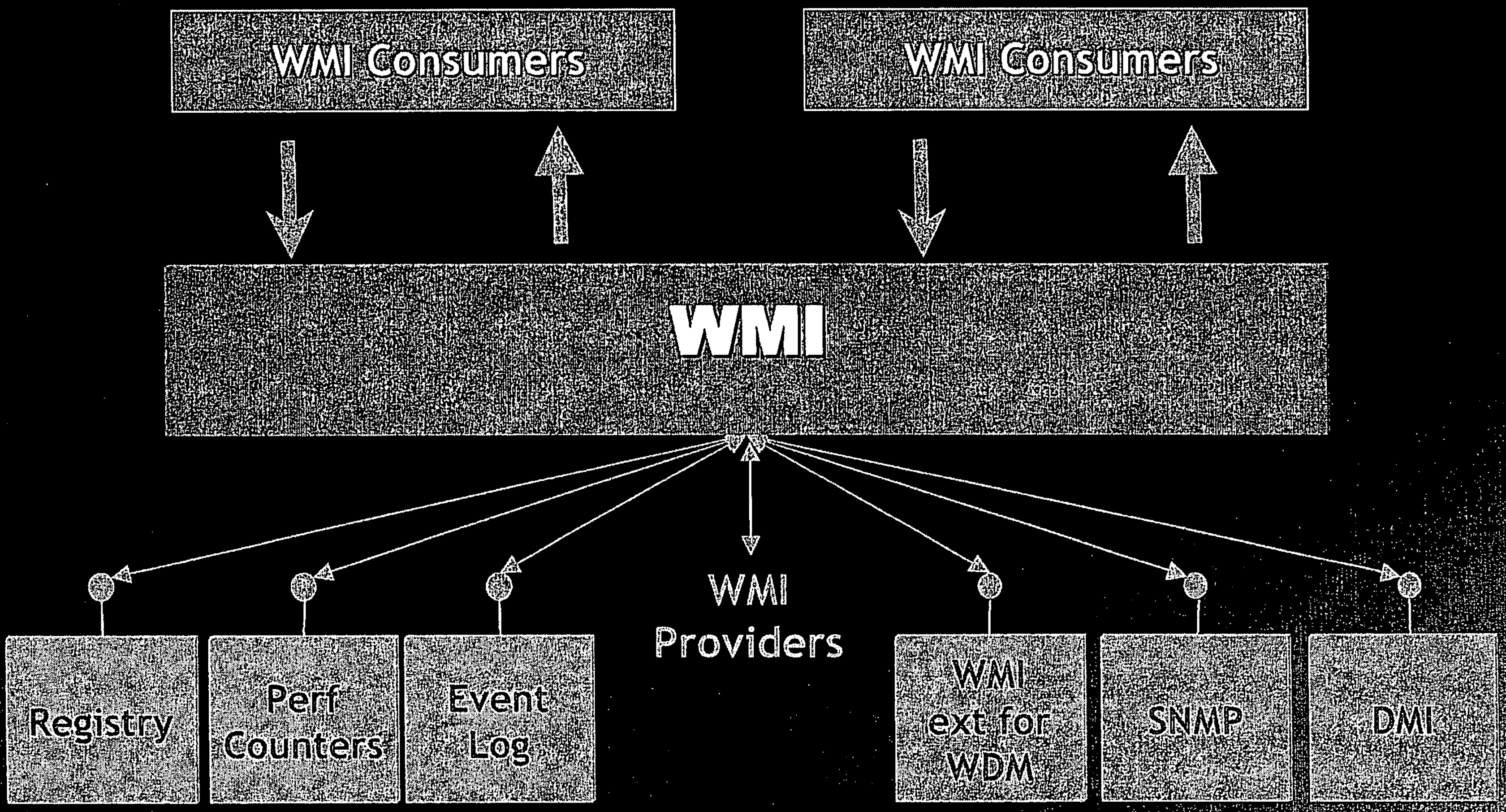
Action

E-mail Admin
Run online.exe

```
Select * from Win32_Service
where Name= "W3SVC"

instance of Win32_Service
{
      ...
      Name = "W3SVC";
      Started = TRUE;
      State = "Running";
      ...
};
```

WMI Overview



WMI Consumers

WMI Consumers

WMI

WMI Providers

Registry

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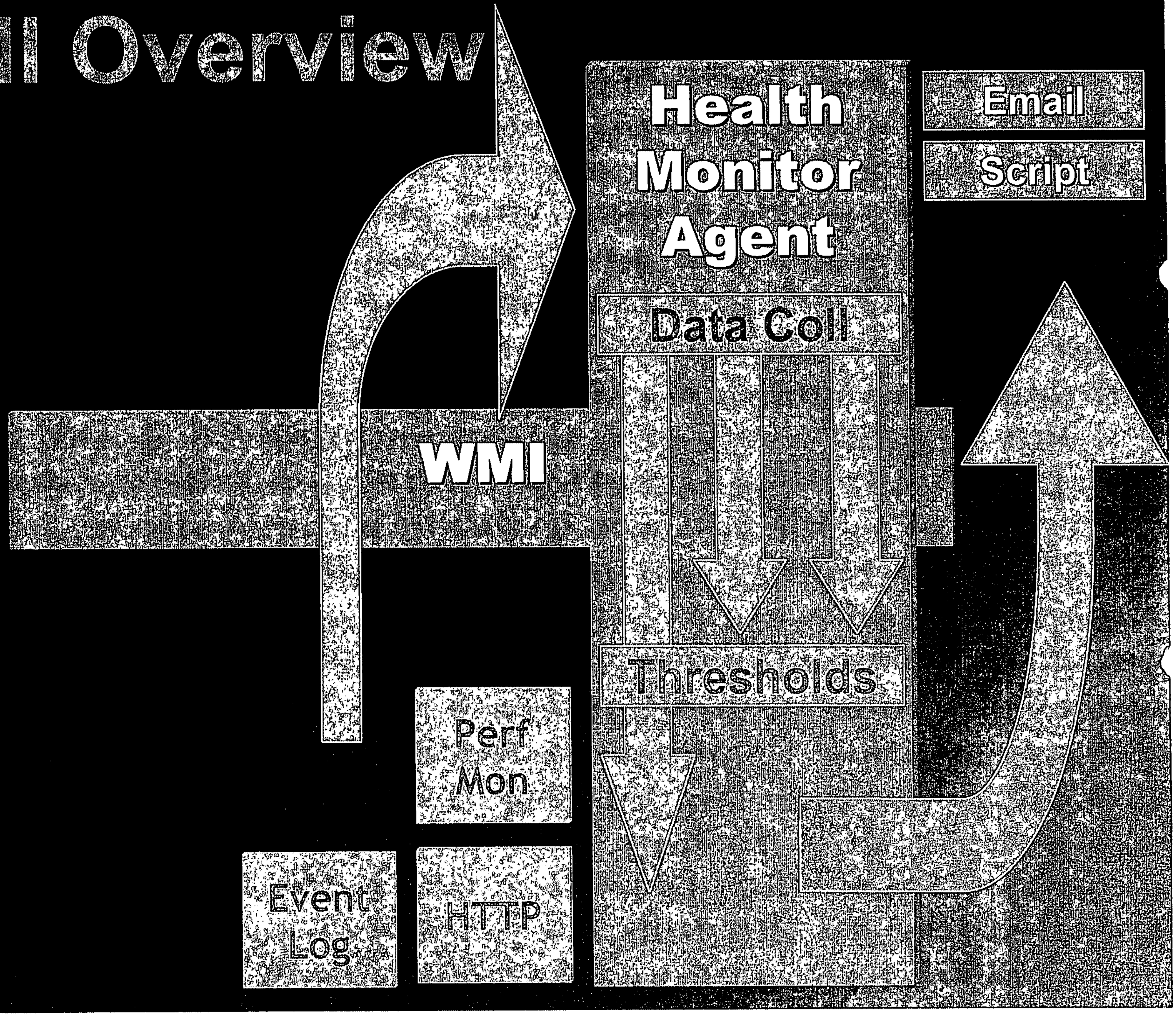
WMI Overview



Health Monitor Agent

Data Coll

Thresholds

WMI

Email

Script

Perf Mon

HTTP

Event Log

Demo: System Health

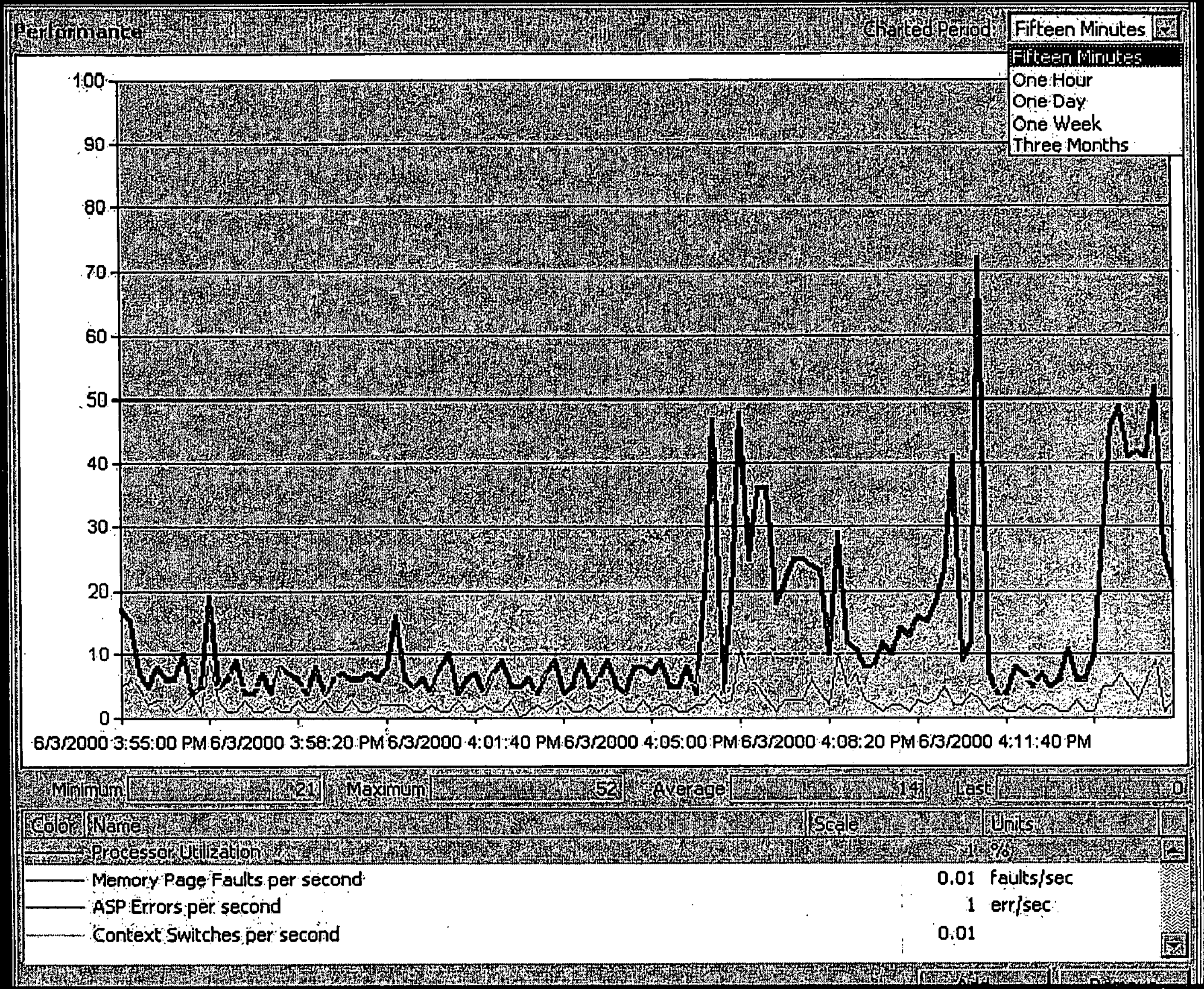
Detect

Analyze

Fix

- Monitor for CPU spikes
- Generate CPU load
- Application Center Perf Viewer
- Application Center Event Viewer
- Application Center Monitor Viewer

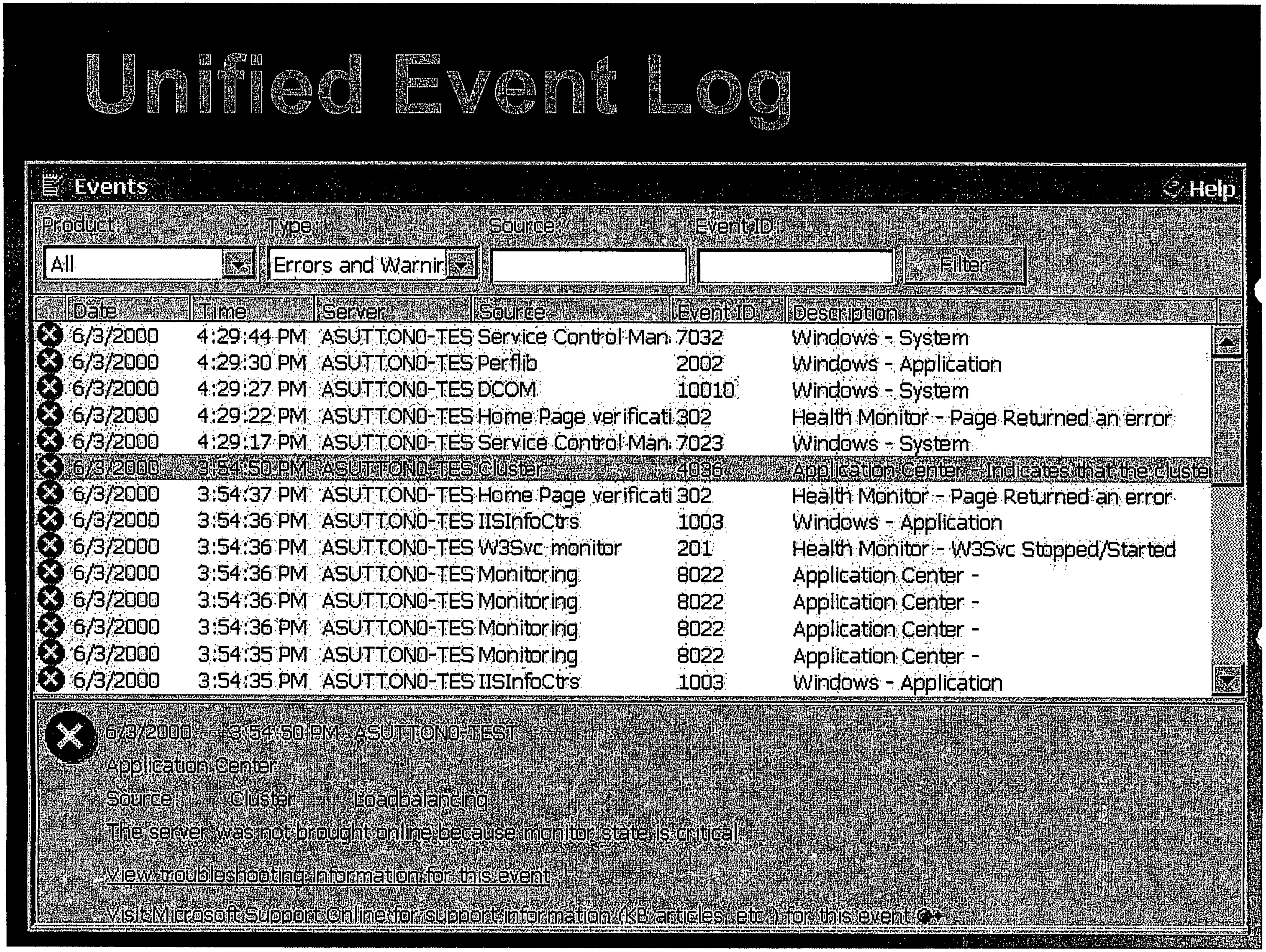
Performance Counters



Charted Period: Fifteen Minutes

Minimum 21 Maximum 52 Average 14 Last 0

Color	Name	Scale	Units
	Processor Utilization	1	%
	Memory Page Faults per second	0.01	faults/sec
	ASP Errors per second	1	err/sec
	Context Switches per second	0.01	



Unified Event Log

Product: All
Type: Errors and Warnir
Source:
Event ID:

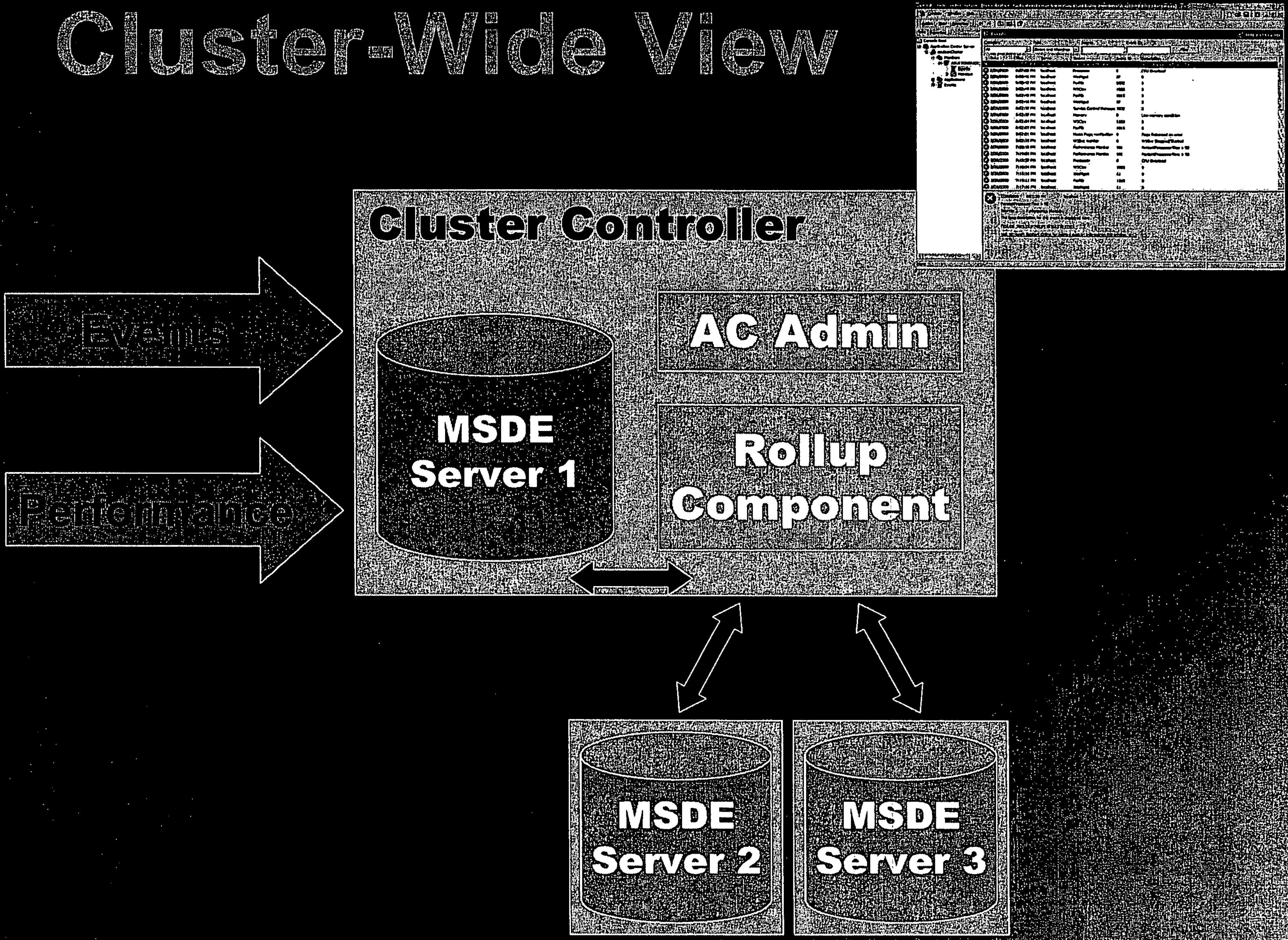
Date	Time	Server	Source	Event ID	Description
6/3/2000	4:29:44 PM	ASUTTON0-TES	Service Control Man	7032	Windows - System
6/3/2000	4:29:30 PM	ASUTTON0-TES	Perflib	2002	Windows - Application
6/3/2000	4:29:27 PM	ASUTTON0-TES	DCOM	10010	Windows - System
6/3/2000	4:29:22 PM	ASUTTON0-TES	Home Page verificati	302	Health Monitor - Page Returned an error
6/3/2000	4:29:17 PM	ASUTTON0-TES	Service Control Man	7023	Windows - System
6/3/2000	3:54:50 PM	ASUTTON0-TES	Cluster	4036	Application Center - Indicates that the cluste
6/3/2000	3:54:37 PM	ASUTTON0-TES	Home Page verificati	302	Health Monitor - Page Returned an error
6/3/2000	3:54:36 PM	ASUTTON0-TES	IISInfoCtrs	1003	Windows - Application
6/3/2000	3:54:36 PM	ASUTTON0-TES	W3Svc monitor	201	Health Monitor - W3Svc Stopped/Started
6/3/2000	3:54:36 PM	ASUTTON0-TES	Monitoring	8022	Application Center -
6/3/2000	3:54:36 PM	ASUTTON0-TES	Monitoring	8022	Application Center -
6/3/2000	3:54:36 PM	ASUTTON0-TES	Monitoring	8022	Application Center -
6/3/2000	3:54:35 PM	ASUTTON0-TES	Monitoring	8022	Application Center -
6/3/2000	3:54:35 PM	ASUTTON0-TES	IISInfoCtrs	1003	Windows - Application

6/3/2000 3:54:50 PM ASUTTON0-TEST
Application Center
Source: Cluster Loadbalancing
The server was not brought online because monitor state is critical.

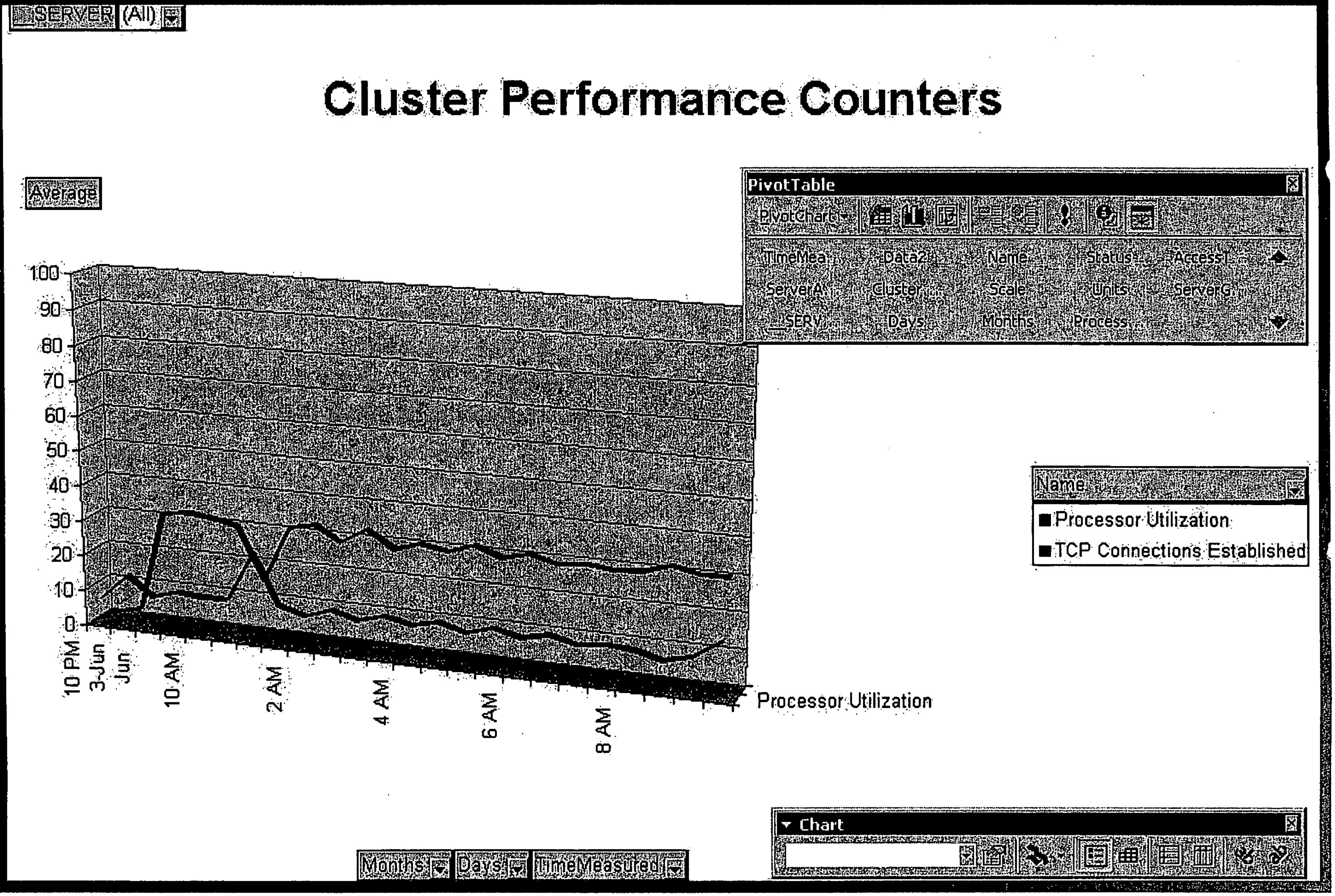
View troubleshooting information for this event

Visit Microsoft Support Online for support information (KB articles, etc.) for this event

Cluster-Wide View



Log Access Possibilities



Monitoring Extensibility

- Application Center WMI Provider
- Extract Application Center logs
- Query and reporting tools
- 3rd party monitoring tools
- WMI event consumer

Demo: Application Availability

Detect

Analyze

Fix

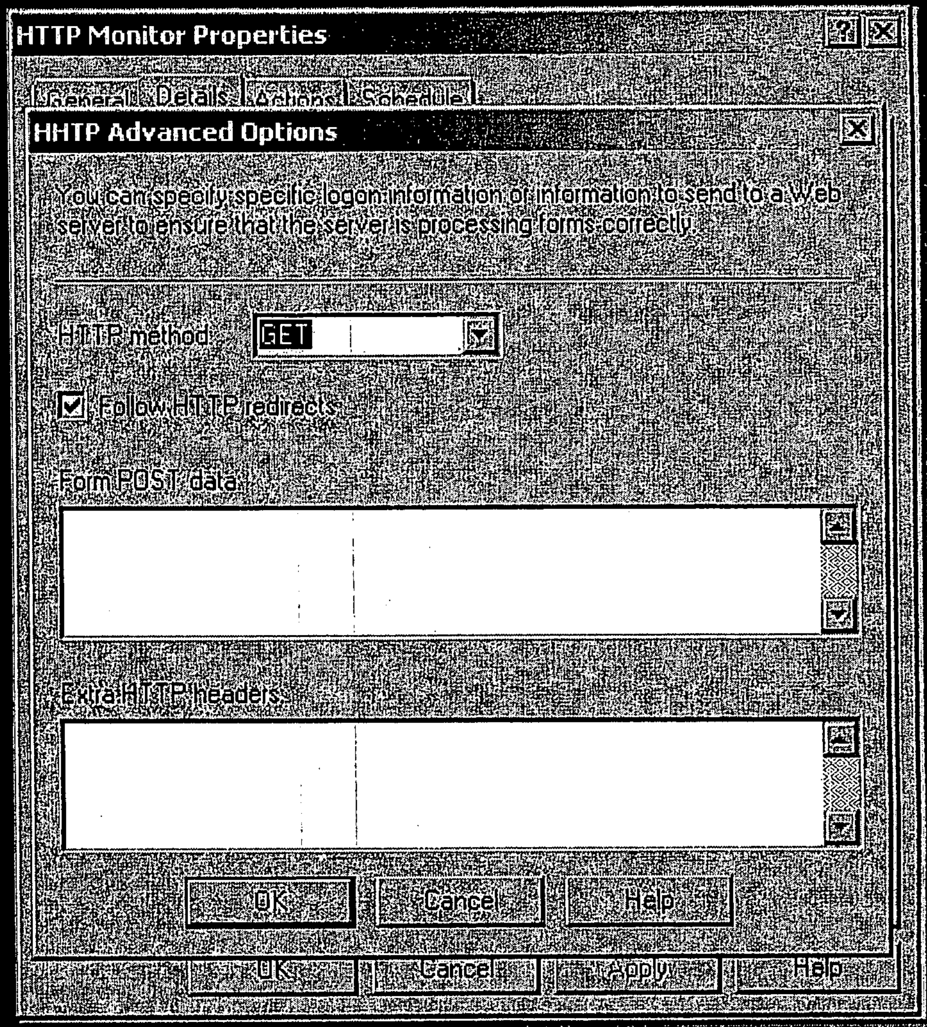
- Create HTTP Monitor
- Web Service Monitor
- Associate Action
- Stop web service on member
- Monitors fail and state goes critical
- Action takes server offline
- E-mail admin and alert in event log

Application Availability

- Monitors can control load balancing
  - If monitor fails, server goes offline
  - Default Application Center rule
- Scriptable to extend behavior
- Beware taking all servers offline
  - Redirect page if database error
  - Or custom scripts

Web Page Monitors

- URL
- Timeout
- Authentication
- HTTP Method
- Post Data
- Custom Headers



HTTP Monitor Properties

HHTP Advanced Options

You can specify specific logon information or information to send to a Web server to ensure that the server is processing forms correctly.

HTTP method: GET

☑ Follow HTTP redirects

Form POST data:

Extra HTTP headers:

Web Page Monitors

- Response Properties
  - ☐ Status code, response time, last modified
  - ☐ Text response, binary response, headers
  - ☐ Content length, received bytes
- Actions
  - ☐ Take offline
  - ☐ Redirect to a different page
  - ☐ Check other monitors
  - ☐ Run a script

Database Monitors

- Database health
  - Performance Counters and Events
  - SQL DMO Provider
- Connectivity to the server
  - TCP/IP port connect
- Successful query
  - ASP page

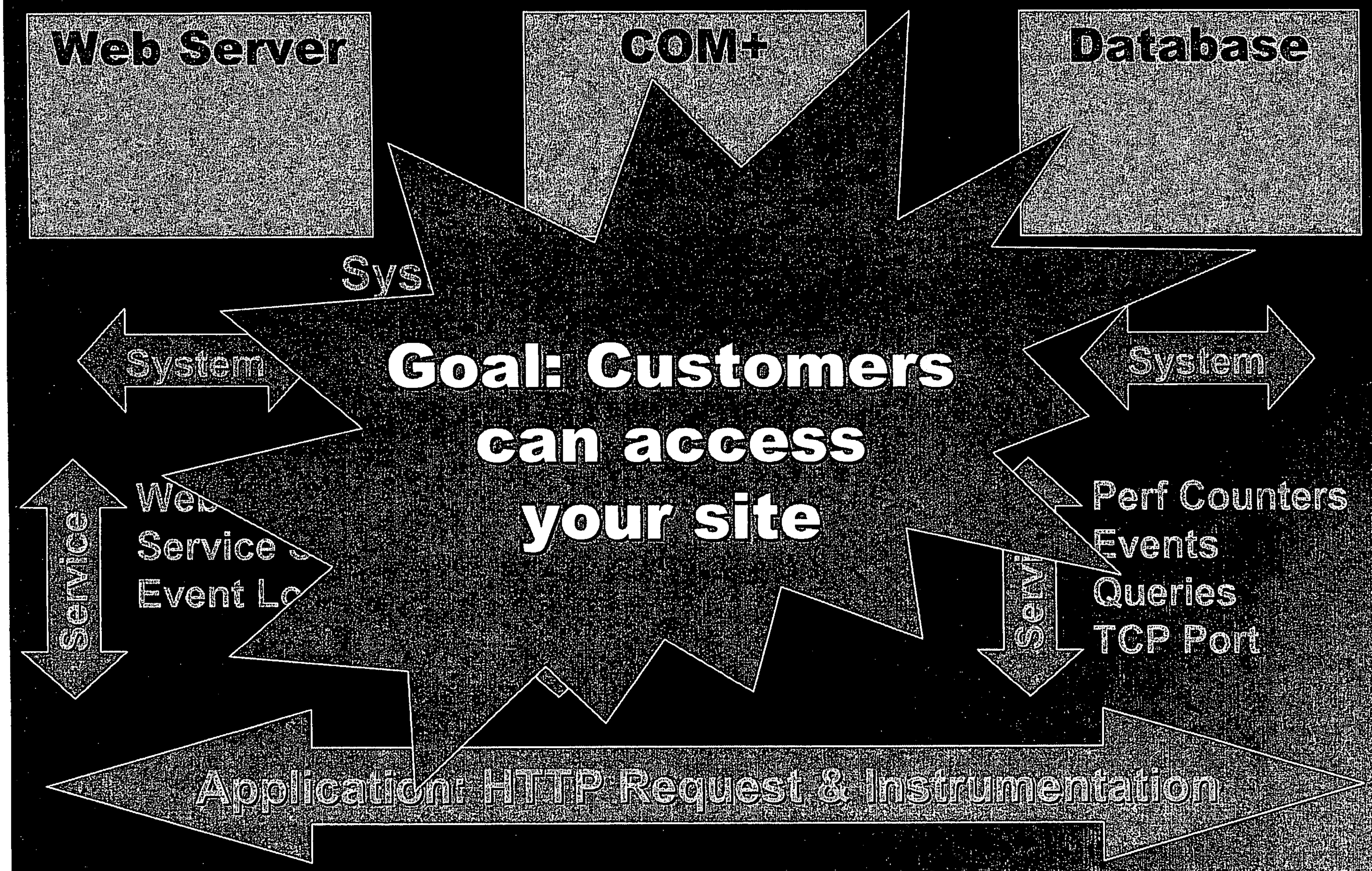
Database Monitoring Script

- Demo ASP database monitor

COM+ Statistics Provider

- Execution metrics
  - Total committed transactions and per sec
  - Total aborted transactions and per sec
  - Total object creations and per sec
  - Total object activations and per sec
  - Shutdowns: total, timeout, admin, failure
  - Object pool timeouts
- Win32_Process statistics (dllhost.exe)
  - Handles, working set, page faults, processor time…

Monitoring Health



Web Server

COM+

Database

Sys

System

System

Goal: Customers can access your site

Service

Web

Service S

Event Lo

Servi

Perf Counters

Events

Queries

TCP Port

Application: HTTP Request & Instrumentation

Application Center Monitoring

- Health Monitor Integration
  - Monitoring samples
  - Load balancing control
  - Replication of monitors and time
  - Operators view
- Cluster-wide event log
- Cluster-wide performance counters

Best Practices

Detect

Analyze

Fix

- Instrumentation
  - ☐ HTTP, ping and port connect monitors
  - ☐ PerfMon and Event Log
  - ☐ WMI Provider
- Monitor application health
  - ☐ What does availability mean to you?
  - ☐ Baseline performance
  - ☐ Watch out for false positives

Call to Action

- Install Application Center Beta 1 !
- Monitor and instrument your applications
- Develop an operations plan
- Understand WMI

Related Sessions And References

- Other PDC sessions recommended
  - *Load-Balancing .NET Platform Applications with Application Center 2000*
    (2-315, Room 311, 9/12/00, 2:45 p.m. Ori Amiga)
  - *Using WMI to Build Management into .NET Platform Applications*
    (3-344, Room 304, 9/12/00, 2:45 p.m. Corina Feuerstein; Travis Muhlestein; Stephen Todd)
  - *Scaling out the Data Tier with Shared Nothing Clustering Technology in SQL Server 2000 and Beyond*
    (2-328, Room 109, 9/13/00, 5:30 p.m., Pedro Celis)
- References
  - http://www.microsoft.com/applicationcenter
  - WMI Reference: Platform SDK, Management Services

Where do you want to go today?

Microsoft